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Textile World

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The Knitted Outerwear Program

THE most inspiring phase of the current textile situation is the growing tendency, on the part of all groups within the industry, to think of their problems in terms of a well-balanced program, rather than to attack them singly and intermittently.

There is a sense of cohesion in the industry's efforts which has been absolutely lacking in the past.

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For example, the National Knitted Outerwear Association recently recommended the following program to its members:

1. Elimination from your lines of all numbers that are unprofitable. One manufacturer, following this policy, reduced his volume by 23%, at the same time increasing net profits $62,000 a year.

2. In fixing your price, figure first your expected price, then your profit, then make your costs fit.

3. Take no orders at a known loss.

4. Watch your wastes.

5. Adopt the policy of regularly replacing out-of-date machines. One mill takes 10% depreciation and every year actually spends a similar amount in bringing its machinery up to date through rebuilding or replacing.

6. Watch credits very carefully.

7. Manufacture against orders only.

8. Aggressively merchandise your products, and build into them maximum possible value.

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Most of the planks in this platform will make a spontaneous appeal to the intelligence of the individual manufacturer. A possible exception is Plank 2; it is our feeling that prices must be made to fit costs, rather than the reverse. However, controversial features of specific items do not obscure the constructive effort toward developing a set of policies for an industry as a whole.

In commenting on this program, Ellery B. Gordon, executive secretary of the association, supplies us with an editorial:

"The responsibility of management during the coming months is great. It has been definitely stated to me by more than one well-informed man in our industry that much of the present financial trouble is quite definitely attributable to other conditions than the depression.

"It is well known that many mills have suffered a serious drop in volume of business in the past year. It is a fact, too, that some mills have held their ground in spite of conditions. It is also a fact that a number of mills have shown a good profit, in spite of reduced volume.

"What makes the difference? In a number of mills, which have suffered great losses, and in some that have been forced out of business or nearly out of business, it is freely admitted that one of their most serious contributing causes was their out-of-date equipment.

"Another contributing cause has been the attempt to meet price competition by deliberately selling below cost, thus perpetuating unprofitable prices and insuring ultimate failure.

"Management has the serious responsibility of rehabilitating the industry. Every business element must be closely watched and sound policy followed. Credits, prices at a profit, the actual elimination of definitely unprofitable items, and rehabilitation of our mechanical plants furnish an opportunity to capable business men."

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In "A Platform for American Business," presented by McGraw-Hill Publishing Co., Inc., and published as a supplement to the Feb. 28, 1930 issue of Textile World, the specific types of effort needed for the stabilization of future business growth were outlined, and the following observation made: "All this must be supported by broader policies of coordination within the industry or trade . . ." The knitted outerwear program is a demonstration of the acceptance of such responsibility by an important division of the textile industry.

The Week in Textiles

as Reflected in This Issue

General

Front Page News

The fact that the Amoskeag Mfg. Co., Manchester, N. H., has for the first time in several years advertised for operatives, was an item of news which made the front page of the *New York Times* last Wednesday. Receipts of orders which necessitate increased operation was given as the cause of the call.

Maximum Cloth Settings

A thorough study of cloth structure has been made by T. Woodhouse and A. Brand in an effort to develop formulas by which maximum settings can be determined previous to weaving. They report the results. *(page 38)*

Ply and Single Twists

The fact that ply twist takes out single twist turn for turn can be conclusively demonstrated on a twist tester, declares a TEXTILE WORLD reader. *(page 44)*

Portable Extractor

High speed and flexibility are features of a new centrifugal extractor of compact design. *(page 48)*

A "Pre-Final" Rebound

The irregular improvement in some lines of business in recent weeks warrants hope, says Dr. L. H. Haney in TEXTILE WORLD Analyst, that bottom levels have been touched. Caution, however, should not be abandoned, he advises, for this may be only a "pre-final" rebound to be followed by one more reaction before sustained recovery sets in. *(page 51)*

Cotton

Sloan Addresses Cotton Exchange

At a meeting of the New York Cotton Exchange after close of trading Wednesday, George A. Sloan, president of The Cotton-Textile Institute, spoke on the gratifying results of the "new uses" campaign and the conservative attitude of mills in the face of greatly increased cotton goods business since the turn of the year.

Farm Board and Cotton

The Federal Farm Board is always a live topic in the cotton market. Its market operations do not get 100% approval. A program is offered, however, which might get such approval. The scheme suggests work in market analysis, improvement of cotton quality and packing, and reduction of production cost. *(page 26)*

Slashing and Weaving

The proper speed for slashing 30s warps and many practical problems encountered in weaving cotton goods were discussed by the Weavers' Section of the Southern Textile Association, in Charlotte, N. C., March 20. *(page 28)*

Raw Cotton Easier

Raw cotton futures have turned easier largely through dullness of trade. Southern spot markets were steady. *(page 55)*

Yarns Steadier Than Cotton

Spinners of cotton yarns are endeavoring to widen margins. Cotton has reacted, but yarn prices are unchanged. The fact that mills have advance business in hand makes success of this move a fair probability. *(page 55)*

Spot Cotton Goods Strong

Continuous depletion of stocks of print cloths until recent figures show these at a record low point, is causing a strong situation in print cloths wanted for immediate delivery. *(page 61)*

Wool

Cross-Warp Coating Effects

Many woolen and worsted designers have failed to acquaint themselves with the principles of cross weaving, more commonly employed in the cotton and silk industries. The application of this weaving method to women's coatings is explained. *(page 33)*

Continuous Carbonizing

Improved carbonizing equipment enabling continuous, uniform operation

The Textile Outlook

THE period of digestion continues in many branches of the textile field. Buying is much more selective than it was several weeks ago. In lines which are not moving so well the stock position is demonstrating its potency. In cottons, where primary stocks are relatively light, strength remains; in silks, where stocks of low priced goods are burdensome, prices find no bottom. The industry, as a whole, may have to face another difficult period before general recovery puts it firmly on the upward path and the behavior of its various branches hinges directly on their ability to control production within the limits of buyers' needs. . . . Cotton goods are meeting narrower demand, but spot goods hold a premium over late deliveries. This is contrary to raw cotton where futures hold the premium. In silks the reverse is true, spot goods are sacrificed while spot raws are higher than futures. Knit goods for spring are fairly active. Wool goods lately opened for fall are meeting favorable comment.

The Business Outlook

THREATENED revival of farm relief agitation by the Farm Board's abandonment of price pegging is politically pessimistic, but fundamentally favorable for business readjustment. The row over the German-Austrian effort to translate French rhetoric into reality, however, exposes again the volcano of political passion upon which European economic stability is precariously perched and clinches the conviction that American business recovery must come from the cultivation of our own cabbage patch. Domestic developments are still dubious. Our index, down slightly this week to 81% of normal, shows no significant change. Hesitancy in steel activity, renewed weakness in commodity prices, and softness in the still selective bond market indicate that confidence in continuous recovery, or initiative in the adventure of creating new wealth, is still crippled by the paralyzing pressure of the deflation complex.—*The Business Week.*

consists of acid-saturating tank, vacuum extractor, dryer, carbonizer. *(page 47)*

Wool Buying Moderate

Wool buying on Summer Street proceeds on a moderate scale with fine wools showing a slight rising tendency. Medium and coarser wools can be found at concessions, but buyers want still lower figures. Carpet wools have strengthened—the first upturn in that group for over 15 months. *(page 57)*

Swim Suit Yarns Active

Although several months late, bathing-suit demand is giving spinners a run of good business. Manufacturers are running overtime to make deliveries and spinners are feeling good effects of this situation. *(page 57)*

Cheaper Men's Suits Coming?

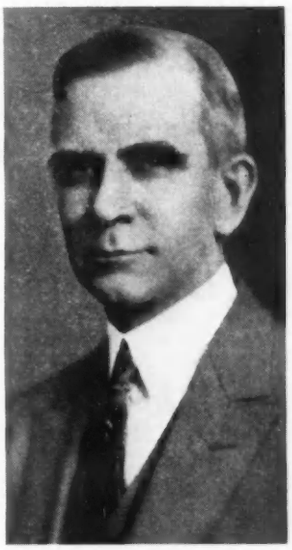
Prices that average 7½ to 10% lower have been named on men's wear suitings for fall and winter wear. A large clothier says that it is possible chain stores that have been selling in $22.50 price range, will see their way clear to lower this figure. *(page 61)*

American Woolen Annual Meeting

The American Woolen Co. has devised a plan whereby its three chief executives will share in profits in excess of $2,000,000 which may be made. The principal offices of the company are to be moved to New York about May 1. These matters were disclosed at the annual meeting this week. *(page 65)*

Outlook for Textiles Much Improved

Says Paul Shoup



"I AM very glad to learn of the cooperation being made effective in the textile industry," says Paul Shoup, president, Southern Pacific Co., San Francisco, Calif. "With all knowledge made available to each unit of the industry as it is developed, both of a technical and statistical nature, and with a common policy in industrial relations looking to the development of the best in the employees, and their hearty cooperation, it goes without saying that the outlook for the industry will be very much improved. It is essential in any industry that the products shall be of good and stable quality, produced economically, distributed so as to create and fill the greatest public demand, and, finally, that among all their units there should be a production of such total quantity, and so related to the time element, as to meet the demand when and where it can be created. I congratulate the textile industry upon undertaking such a program."

Knitting

Knitted Outerwear Program

A constructive program has been recommended in specific terms by the National Knitted Outerwear Association to its members. *(page 23)*

Tension in Warp Knitting

In warp knitting, it is more difficult to control the tension positively on boiled-off than on gum silk. *(page 45)*

Full-Fashioned Hose Stronger

Tone of the women's full-fashioned hosiery market grows stronger daily, in proportion of the decline in surplus stocks. Prices hold firm, and it still seems possible that they may advance before the end of the season. There is a shortage of irregulars and buyers are paying 25 to 50c. premiums. *(page 63)*

Spring Underwear Moving

Lightweight underwear is active, and knitters find sales compare favorably with last year, but heavyweights are still hesitant. Sellers look to early advent of mild spring weather to spur interest among distributors. *(page 63)*

Outerwear Demand Light

Bathing-suit demand is steady, though lighter than this time last year. A spell of warm weather in May would mean high-pressure buying in some cases. Spring sweaters are in demand, but the call is lighter than last week. *(page 63)*

Silk

Spun Silk Manufacture

To obtain the best results in the manufacture of spun-silk yarns, the various operations and processes must be varied according to the type of raw silk employed. In the last two years a number of improvements have been made in spinning equipment and machines are now available which enable long-draft parallel spinning. *(page 30)*

Silk Association's Annual

The annual meeting of the Silk Association of America was held March 25. T. B. Hall reelected president. *(page 36)*

Retailers Sell More Piece Goods

Silk goods houses have felt better retail demand for piece goods. *(page 37)*

Quills and Cops

New quills and cops are made of Duralumin containing a high percentage of magnesium and are equipped with fiber bases. *(page 49)*

Raw Silk Weak

Raw silk was weaker on a slackening of demand from American mills. The Yokohama situation on which the future hinges is still uncertain. *(page 59)*

Thrown Silk Declines

Thrown silk prices dropped 10 to 15c. this week. Despite the cut, business remains sluggish. Spun silk is also dull, but prices are steady and the outlook regarded with confidence. *(page 59)*

Cheap Silks a Burden

Popular-price broad silks have become a burden to the market. Sacrifice sales go as low as 70c. a yd. Garment houses seem indifferent to bargains. The whole broad-silk market is feeling the effect and expects little improvement till the excess stock has been cleared. *(page 61)*

Rayon

Shuttles for Rayon Crepe

The best type of shuttle for weaving rayon crepe was only one of many questions relating to the slashing and weaving of rayon fabrics which were discussed by the Weavers' Section of the Southern Textile Association. *(page 28)*

Profits in Sight for Rayon

Increased volume of business in rayon is tending to make the low prices now current less devoid of profit than producers at first believed. Latest reports are that a good percentage of the industry will record a profitable quarter despite the cut. *(page 59)*

Processing

Dyeing Mohair

Mohair upholstery fabrics are dyed with fast colors by either the one- or two-bath method for either a solid shade or a two-tone effect. *(page 44)*

Finishing Cotton Sheeting

In finishing cotton sheetings the goods are starched and calendered. A typical formula is given. *(page 45)*

What the Farm Board *Ought, and Ought Not, to Do in Cotton*

By "An Observer"

◆ *In the accompanying article, the author (a close student of the cotton situation who prefers to remain anonymous) tries to cover a lot of ground. We are not in agreement with him on some of his suggestions, and we doubt the practicability of others, but we believe his statement is thought-provoking. We think he is particularly sound when he gets to the positive, rather than the negative, side of the picture. No one will deny that there are many constructive activities in which the Federal Farm Board might profitably engage to an increasing degree. . . . . We should like to have the reactions of readers to this article.*—Editor.

DESPITE official and semi-official statements to the contrary, majority opinion inclines to the belief that the Federal Farm Board is undergoing, or about to undergo, a reorganization. From a manufacturer's point of view, the following suggestions are offered as of possible help in the present cotton dilemma.

As an immediate practical aid to business, assurance should be given that no more cotton will be bought for stabilization purposes; the amount of cotton now held should be published; and a definite plan should be stated as to the ultimate disposal of these present holdings of cotton.

Two courses are available to the Board in planning to dispose of the "stabilization cotton." A statement could be made as to the minimum price at which any of this cotton will be sold. A statement of this kind would enlarge the horizon of the cotton trade. A better plan would be for the Board to announce a policy to dispose of a certain percentage of its holdings annually over a period of 10 or more years. By so doing the trade can definitely figure on what stock is overhanging the market. The gloomy psychology of "What is the Farm Board going to do?" now prevailing throughout the textile industry, will be dispelled and the trade can push business with one less uncertainty before it.

Divorce Co-operatives from Farm Board

The co-operatives should be divorced from the Farm Board and made to be self-supporting. An able manager can without doubt make them pay. However, the co-operative should be the acknowledged merchant of the cotton of the grower member. The co-operative should be allowed to use the futures market as any other merchant but as a merchant it should use the judgment of the manager in all its transactions and not encourage its members to use their own judgment as to the best time to sell their cotton.

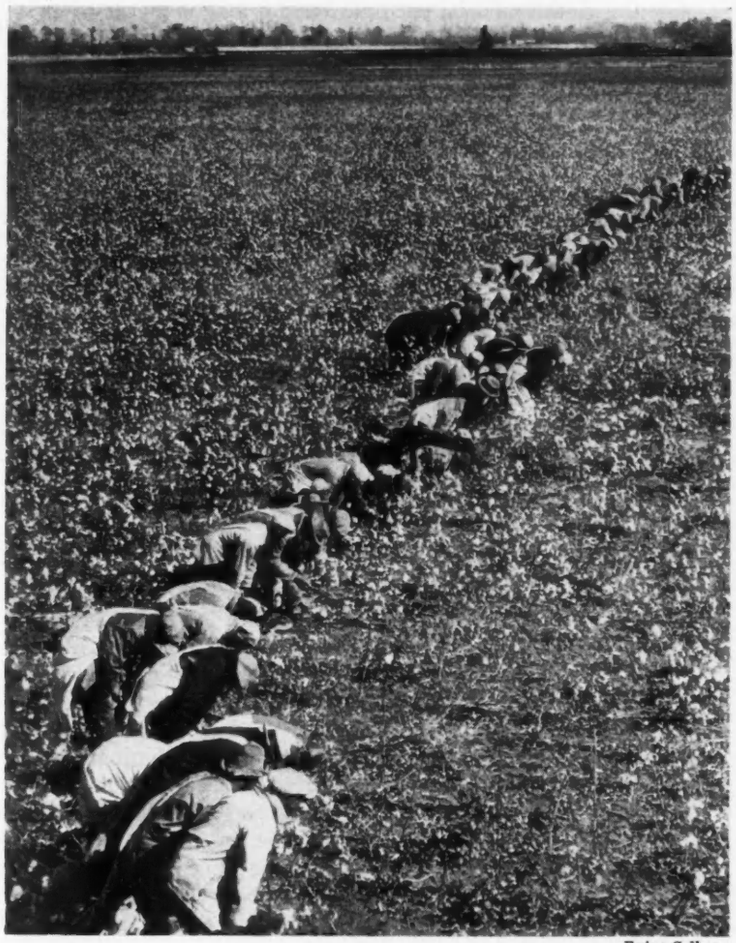
In explanation of this statement, it should be remembered that a grower will sell a small amount of cotton once a year and will come in contact with the market therefore but once a year. The co-operative has to be in touch with the market at all times. Therefore any policy such as allowing a grower to sell on call forces a co-operative to use a policy designed by its members and not necessarily a policy of a cotton merchant. The foregoing statement may seem radical but a cotton grower specializes in growing cotton and a merchant in selling cotton. And policy involving the futures market should be dealt with by men familiar with it. The futures market should be looked upon as a complicated machine which usually injures the uninitiated.

If the co-operatives are recognized as the merchants whose duty is to sell the cotton of their members, their present policy of selling cotton now and buying futures contracts for fall delivery will also be eliminated. Two squeezes in the past year have tended to make the sellers of any futures contracts keep constantly in mind the possibility of delivering cotton upon their contracts. This seemingly would cause a tendency to handle only tenderable cotton and of keeping a large amount of cotton available for circulation instead of putting it in channels for consumption. This increased caution on the part of merchants may also account to some extent for the decreased consumption of American cotton abroad which is so much talked about. From a manufacturing standpoint, when a mill once changes over to a foreign growth of cotton, it will not change back to American cotton without considerable high-grade promotion work and salesmanship.

What the Board Should Do

On the constructive side of the problem the Farm Board can take a page from the progress of the textile industry. During the last few years the progressive manufacturers have been (1) analyzing the market to find what articles were needed and in what quantity; (2) improving the packaging of the product; (3) improving the quality of the product; (4) reducing manufacturing costs.

The Farm Board can analyze the market and find what kind and quantities of cotton are wanted. At present with a 7c. tariff on staple cotton it seems foolish



Ewing Galloway

Between the cotton field and the mill are many diverse influences, all of which might be coordinated or simplified by the Federal Farm Board

to curtail the growth of any staple cotton in this country.

American cotton is noted for its poor package. Designing and introducing a better cotton package have innumerable obstacles; yet this is one of the fundamentals in merchandising. Ten years ago, what sheet manufacturer would have dreamed of selling sheets and pillow cases in as neat packages as candy?

Improving the Quality

In improving the quality of the product to be sold, immediate aid can be given by the Farm Board. The mills have been complaining for years about the deterioration of the crop. This deterioration has been partly due to efforts on the part of seed producers to obtain a quick maturing variety of cotton to beat the boll weevil and also to obtain as much cotton as possible. Some of this deterioration is directly due to the ravages of the boll weevil. To improve the quality of the cotton, the introduction of better seed can be pushed. Mill men and agricultural colleges have already done much work introducing good seed. Efforts must be made to control the boll weevil—of which mention will be made later.

Reducing Costs

In aiding the reduction of the costs of raising cotton, the Farm Board will also aid the whole industry. Here again control of the boll weevil enters into the picture. In a year of heavy boll weevil infestation the costs of production will rise greatly.

On the other hand the farm industry is probably at present as much at sea as the cotton textile industry was before the educational work of The Cotton-Textile Institute regarding production costs. The Farm Board can assist in determining standard costs of production. These costs will vary throughout the belt. However, a cost figure should show the necessary yield per acre required to break even on lands of varying price in different States or even in different sections of the same State with cotton. A practical farmer such as D. R. Coker of Hartsville, S. C., would prove of infinite value here. Even with 10c. cotton there are doubtless growers in the Belt who can make both ends meet. Increased yield per acre will have to be stressed to cut costs.

By reducing the costs of production the South will gradually equip itself to meet the potential competition of Russia and other developing countries.

New Psychology Needed

The Farm Board also will have to develop a new psychology. It should study the farmer's problem in the various sections and not pay so much attention to the "farm problem" in the abstract sense. If less talk were made about "marginal" land and more concrete examples given as to what marginal land is, for cotton at different prices, some progress would be made. The ideal farm for each part of the country will probably ultimately develop into a medium between the independent solely self-supporting unit of our early settlers and the present single crop units. The Board also should assist in advising and in finding new crops to plant in areas where excessive curtailment of a crop is suggested.

As a further aid to the farmer the Farm Board should attract the best inventive genius of the country to help the farmer. This might possibly be done by establishing a fund or offering a price for the practical accomplishment of tasks, or inventions, to aid the farmer. This would be similar to the former Guggenheim fund for aviation advancement. For instance if the Board offered a million dollars for a cheap practical method or system of eliminating the boll weevil, or for a machine to grade and staple cotton so that a grower can get the full value of the cotton he raises, the best brains in the country would be attracted to the work.

Not Only a Farm Problem

The cotton problem is not merely a farm problem. It belongs to all parts of the industry: the grower, merchant and manufacturer. Any results which aid the flow of cotton from the grower to ultimate consumer, which will cut extreme fluctuations in the supply and consequently in the price, will be of value to all. Elimination of extreme fluctuations in price will also increase consumption.

There are many places where cotton can compete with other materials. These places of substitution increase as the price of cotton decreases. However, no man is going to establish a business, based on 10c. cotton, when cotton is 10c. only once in ten or fifteen years.

Many Weaving Kinks *Disclosed at S.T.A. Section Meeting*

WIDELY varied problems encountered in weaving both cotton and rayon goods were discussed at the spring meeting of the Weavers' Section of the Southern Textile Association, held at the Manufacturers Club, Charlotte, N. C., March 20. E. A. Franks, superintendent, Dunean Mills, Greenville, S. C., chairman of the section, led the discussion and also presided at the luncheon.

Tight weaving tension was said to be essential in weaving rayon crepes in order to obtain a good face on the cloth. On the other hand, it was generally agreed that the medium tension is much better for rayon voiles. It was pointed out that in voiles the filling must do as much turning as the warp in the finishing processes.

Drawing-in a Rayon Crepe

There was a difference of opinion as to the best method for drawing-in a rayon crepe. J. D. Pell, manager, Angle Silk Mills, Inc., Rocky Mount, Va., felt that best results could be obtained by employing the skip draft. Other members insisted that drawing-in drafts should be made as simple as possible and that there is no particular advantage in the skip draft for a plain fabric. One mill was said to be producing a rayon crepe of good appearance by drawing in straight with drop wires two in a place on the rod. No information was available as to how the fabric looked after finishing.

In discussing the best length of print cloth to take off the looms, two points were cited in favor of taking off the cloth in four-cut rolls, or in 240-yd. lengths instead of 120-yd. lengths. Economy in labor costs was the first advantage, while another was the fact that defects in the cloth could be cut out, leaving longer pieces of first-quality cloth than would be left after cutting the original 120-yd. lengths. W. E. Wall, overseer of weaving, Lancaster (S. C.) Cotton Mills, stated that he takes off print cloth in 250-yd. lengths.

More than 1% stretch in slashing 30s yarn should be considered excessive, according to D. F. Short, overseer of weaving, Consolidated Textile Corp., Lynchburg, Va. He stated that as a result of an exhaustive test to determine the major causes of loom stops, it was found that considerable trouble resulted from "tie-backs," or ends breaking on the whip rolls. After measuring the amount of stretch in slashing, which was $1\frac{3}{4}$ to 2%, the section beams were equipped with roller bearings. Since this change, 1% of stretch is considered the limit and the average on beams of 2,600 to 3,000 ends is about 0.5%. In another mill which formerly stretched yarn 4% in slashing, the installation of roller bearings on section beams reduced the amount of stretch to less than 1%.

Slasher Speeds

The proper speed for slashing 30s warps was said to depend largely upon the number of ends in the warp. J. C. Boyle, overseer of weaving, Inman (S. C.) Mills, stated that a slasher speed of 45 yd. per minute was tried on warps of 3,100 ends for 80x80 print cloth, and as a result much trouble was experienced from rusty selvages and mildewed warps. The difficulty was eliminated after slasher speed had been reduced to 36 yd. per minute. O. E. Bishop, overseer of weaving, Balfour (N. C.) Mills, Inc., reported very satisfactory results in slashing warps for 80x80 print cloth at a speed of 45 yd. per minute, with steam pressure of about 1 lb. and cylinder temperature of 230° F. on one slasher and 240° F. on another.

F. D. Lockman, superintendent, Monarch Mills, Lockhart, S. C., stated that certain chemicals in the size compound would sometimes react on iron beam heads, causing them to rust, and thus result in rusty selvages. Painting the beam heads was suggested by several members as a means of preventing trouble with rusty selvages without drying the yarn too much.

The life of cotton harness was said to depend upon the size of yarn and the kind of sizing materials used. The records of one mill showed that cotton harness had lasted about eighteen months, running night and day on 80x80 print cloth. In another mill the average life was said to be about ten months.

Wear on Harnesses

Several explanations were advanced as to why the back harness wears out sooner than the front harness. First, it was said to be affected more by excessive moisture from the atmosphere in the weave room itself and from the arms of the weaver. The front harness, on the other hand, is constantly fanned by the working parts of the loom. The back harness is the first to chafe the yarn, thus causing more shedding in back than in the front harness, and it also has a longer stroke. It was pointed out that the practice of heavier sizing has resulted in cotton harness wearing more than in former years.

In discussing the best type of shuttle for weaving rayon crepe, Mr. Pell stated that a fiber-side silk shuttle with the Paterson tension eye is especially suitable for this work. Another member said that the Paterson eye cannot be used with success on automatic looms. Oil-treated shuttles were said to stain or mark rayon and thus to be unsatisfactory for this kind of work.

By using a mixture of Japanese wax and tallow on shuttles once a week, one mill found it possible to keep its shuttles smooth and thus reduce rough treatment of the yarn. This mill reported the average life of its shuttles at about eighteen months, single daytime shift only.

S. J. Adams, overseer of weaving, Judson Mills, Greenville, S. C., was of the opinion, after trying several kinds of fur lining in shuttles for weaving rayon, that muskrat hide produced the best results. The proper speed for running rayon through the slasher was said to depend upon the quality of the yarn and the number of ends in the warp. Good results have been obtained, it was reported, at speeds ranging from nine yards per minute for warps of 7,000 ends, up to 18 yd. per minute for warps of 3,000 ends.

E. A. Franks, Chairman Weavers Division, S.T.A.

Yarn Stretch in Slashing

The next question was: What is the proper percentage of stretch to take out of rayon at the slashers? Again the answer was said to depend to a large extent upon the quality and size of the yarn. The consensus of opinion was that from 4 to 6% stretch is about right for 150-denier yarns of the viscose type. An excessive amount of stretch, it was pointed out, would cause the ends to pull apart.

No trouble will be experienced with slack selvages in cloth if the warps are slashed properly and the beams are true. This difficulty was said to occur frequently on account of beam heads not being true. Mr. Lockman stated that the trouble could sometimes be eliminated by not putting so many threads in the lease combs near the selvage on the slashers.

Pick Counters

Pick counters are of considerable advantage in the weave room, according to W. H. Gibson, Jr., manager, Mansfield Mills and Jennings Cotton Mills, Inc., Lumberton, N. C., who stated that experience both with and without pick counters had convinced him of their value, particularly as a means of checking the production of individual weavers.

An accurate record on the performance of each loom could be obtained with pick counters, it was pointed out, thus making possible a more efficient supervision of the weave room.

Several members preferred sizing compound instead of gum for sizing 40s to 60s yarn. J. L. Jewel, superintendent, Chesnee (S. C.) Mills, stated that 10 to 11% is, in his opinion, the proper percentage of size for 40s warps used in weaving a 128x68 combed broadcloth. He uses gum in sizing warps for combed broadcloths. Other members recommend from 10 to 12% size for this class of work, pointing out that it was not altogether a question of good running work, but of finish on the goods. Some mills were said to size as heavily as 18% on other types of goods without experiencing excessive shedding.

The next question for discussion was: What benefits in the weave room, if any, are derived from oil-treating the cotton stock? Four members present indicated that they were oiling raw cotton, but nothing could be said as to its effect in the weave room. However, one member stated that it eliminated a considerable amount of fly in carding and spinning. Mr. Gibson reported, in answer to a question from the floor, that he applies 0.2% of oil in proportion to the weight of raw cotton going into process.

Catch cords were said to be more satisfactory than "crow-hops" for catching filling that is to be clipped off. This problem rated particularly to marquisetts.

The "crow-hop" was said to skip occasionally and thus result in second grade cloth.

Two advantages of the center filling fork in weaving were cited: (1) makes it possible to weave a little wider piece of cloth and (2) when filling breaks, the loom will stop on the pick on which the break occurred. One member stated that the disadvantages far offset the above points. The first of these disadvantages, which he considered sufficient to render the center filling fork objectionable, is that it causes filling kinks.

Shuttles for Rayon Voiles

Regular shuttles with the midget feeler were said to be satisfactory for weaving rayon voiles on the automatic loom. It is necessary to have the shuttle lined with a suitable fur and to have an eye particularly adaptable for this class of work.

In slashing rayon, the method of creeling section beams straight in, as compared with the cradle method, was said to keep the tension even on the beams and prevent the yarn from rolling. Chairman Franks considered creeling section beams straight in better than creeling similarly to the cotton method.

Although the yardage counter was generally considered the most satisfactory instrument for determining stretch on the slasher, another very simple plan, in the absence of yardage counters, was described by Mr. Lawrence. This consisted merely of marking off a certain number of yards, running the yarn through the slasher, and then measuring it again to ascertain the amount of stretch.

Loom Harness

There was said to be little difference in loom stoppage on cotton harness as compared with steel heddles. Steel harness was reported as being in operation in one plant for four years without showing any wear, and in another mill for seven years.

This type of harness was said to have lasted more than 25 years in some of the older mills.

One member was of the opinion that a 14-in. heddle is preferable for the 50-in. loom, while the 12-in. heddle is better on 48-in. looms. In reply to a question, one overseer stated that the Roper let-off, if set properly, would work satisfactorily on goods running from 24 to 100 picks.

Modern Practice in

Manufacture of Spun Silk

By George W. Searell

Kahn & Feldman, Brooklyn, N. Y.

SPUN-SILK yarns are made from raw waste silk coming from China, Japan, and Italy, chiefly, and smaller quantities from France, India, and Asia Minor. The color of waste silk varies with the locality, country, and care with which the silk worm is reared. White silk is the best, followed by the yellow Italian. The poorer qualities have a yellowish green color and come from China. Tussah silk is the product of a silk worm which has been fed on oak leaves; the brownish coloration of this silk is part of the fiber itself; and therefore is difficult to remove in bleaching.

Silk cocoons are of an egg-shaped character; therefore the longest, strongest fibers are in the middle; while the shortest are at the ends. It is from these end fibers, which constitute about 40% of the cocoon, that the silk waste comes. Each locality handles its waste in its own manner, and this practice gives rise to various names and types.

Pierced cocoons, for example, are derived from the part of the silk crop from which the moth was allowed to emerge for cultivation of the new crop of eggs; these have an opening in one end and cannot be reeled into a continuous thread. Frison, called in England Nibs, is a loose waste combed out to resemble a bouquet of flowers with long stems; it is made by hanging the waste on a pin or peg and straightening it by hand so that the stem fibers are parallel. Kai-Kia, pronounced ki-kee, is a conglomerate mass of waste which contains much of the metamorphic stage of the worm and cocoon pieces, called shells or buchons. This is a very soft type of waste, and the yarn made from it has a great covering capacity when used for filling in the manufacture of piece goods. Steam waste comes from the steam filatures of Canton province. This variety is weaker than all the others and often contains dead or immature fibers. It, however, has a remarkable luster.

Grading and Baling

The various wastes are brought in loose condition to the merchants in the Orient, who make it into bales of a convenient size to handle, usually from 200 to 400 lb. each. After having been examined as to grade, the baled waste is shipped to the United States by fast steamships which arrive on the Pacific Coast, then trans-shipped by train to the silk warehouses in the eastern states. Although the product is called waste, it is expensive; and a careful check must be made, according to set standards, of weight of bales, tare weight, moisture, and yield of first-quality dressed silk. Any deviation from standards allows a manufacturer to reject.

Opening and Checking Bales

The first stage in the manufacture of spun silk is the opening of the bale; all the ropes, burlap, boards, and various wrapping materials are carefully weighed and recorded against the bale number to arrive at a net weight. Open wastes, such as frisons, are separated; the flowers are removed from the stems by cutting with a sharp knife. The flowers contain the short fibers, and the stems the long fibers. The operation of separating the fibers of tightly compressed bales, such as Kai-Kia type, is best accomplished by placing the unwrapped bale in a tank equipped with a vacuum pump, withdrawing all the air, and allowing wet steam to flow in to replace the vacuum. The required number of repetitions of this vacuum and steam replacement are made to allow a thorough penetration into the silk and to open it like the leaves of a book. After the silk has cooled, it is pulled

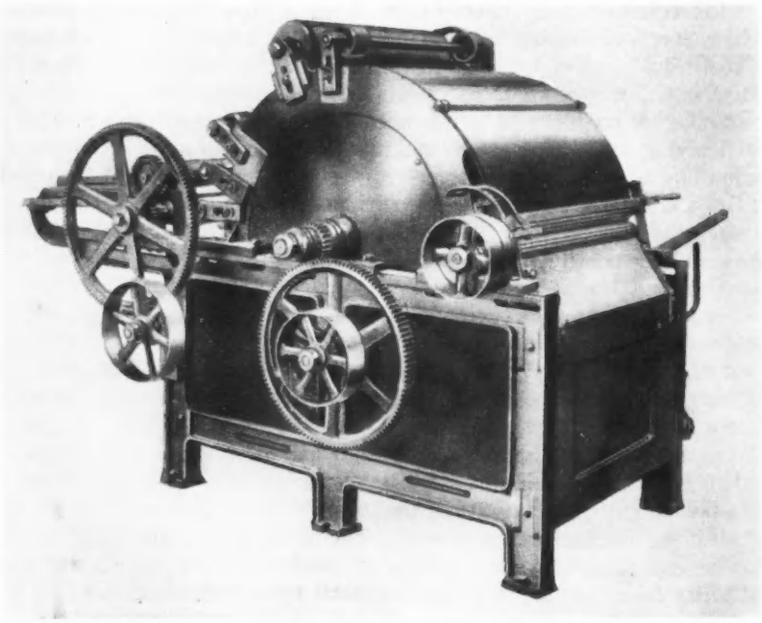


Fig. 1. Lapping machine used in manufacture of spun silk

apart by hand to loosen all the bunches, and then placed in piles of 100 lb. each on a raised platform ready for the next operation.

In the case of pierced cocoons, the bales are opened and the cocoons shoveled into an opening machine, where the bunches are separated and the loose dirt is dusted off. This machine delivers the cocoons into a large burlap bag made to contain exactly 75 lb.

Boiling-Off

Either of two methods may be employed for boiling-off the gum and dirt. In the first method 100 lb. of opened waste or 75 lb. of cocoons is divided into about 1-lb. portions, by men known as baggers, and placed in coarse, woven bags made of a heavy, cord-twisted yarn. The bags containing the 100 lb. (or 75 lb.), called a boil, are now immersed in a large tub of soap, soda ash and hot water and are boiled gently for approximately one hour. At the end of the hour, the silk is removed and run through a set of heavy, rubber-covered squeeze rolls to remove the loose gum and dirt. It is returned to a tub containing a fresh supply of soap and soda ash, and is boiled again for an hour. At the end of this time the silk is placed in a time-controlled hydro-extractor equipped with a hot-water nozzle to rinse off and extract the last traces of loosened gum. The time of this operation is usually about 10 to 15 min. Hydro-extracting reduces the moisture content to about 30%. The bags are removed and opened, and the silk is taken out, and placed on the apron of a continuous dryer, which is maintained at a temperature of 180° F., from which it emerges at the end of 60 min. containing 5% moisture.

In the second method the opened waste is placed on trays made of aluminum screen, the trays are put on a rack truck, and the whole placed in a tank where the boil-off is carried out with soap and chemicals as before for a period of 60 min. When the boil-off is complete, the silk is removed and run through a set of heavy rubber-covered rolls, flushed off with warm water, run through a second set of squeeze rolls, and hydro-extracted. This method of boil-off is known as soap-foam degumming and is used extensively in European countries.

The original 100 lb. of raw-silk waste has now been reduced to 70 to 80 lb., since the average amount of gum, dirt, and chrysalis amounts to 20 to 30% of the product. Here is a fertile field for the chemical engineer to develop a method to separate and use the spent-soap liquors. The boiled-off stock is taken to a conditioning room and allowed to cool off and pick up the legal regain of 11% before further processing.

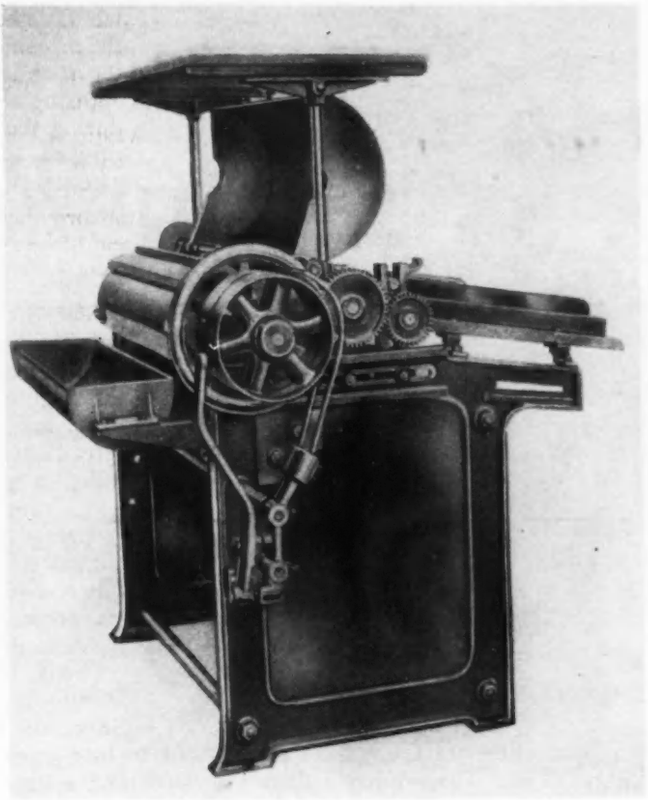


Fig. 2. Filling engine employed for cutting waste silk to staple lengths

Similar to all the textile fibers, raw silk has its irregularities, such as pieces of rope, straw, sticks, and other foreign matter. There is also a variance of the size of the filaments, amount of gum, and chrysalis, which all cause trouble in producing an evenly boiled-off waste. Because of the yellowish cast of boiled-off wastes, some manufacturers blue their stock in the second boiling operation, in order to even the shade.

Domestic Waste

There is still one important type of waste which has not been mentioned; namely, domestic waste. This comes from the throwing mills in this country, where the skeined first-quality silk, or neat silk, is made into tram, organzine, or crepe. It is of excellent quality, and has a very long staple in comparison with the afore mentioned types. There are two very grave defects, however: one is that it contains mixtures of other fibers, such as cotton, rayon, etc.; and the other, that it contains hard twist. Cotton and rayon are removed by carbonizing, and hard twist is eliminated by hand picking.

The carbonizing process consists of immersing the stock in a 2% solution of sulfuric acid for 20 min., removing the excess liquor by centrifuging, and placing the silk upon the apron of two continuous dryers arranged in tandem, the first maintained at a temperature of 140° F. and the second at 215° F. The purpose of the first dryer is to dry the dilute acid solution on the fiber; and of the second, to raise the temperature to the degree necessary for carbonization. The waste is cooled, bagged, and boiled-off in the same manner as are other types of waste, except that a direct cotton dye is added to the second boil-off bath with a quantity of salt in order to dye any uncarbonized cellulose and thus facilitate its removal by hand picking.

A careful check is made on the chemicals used in each operation so as not to impair the quality of the finished yarn.

Making the Lap

After the silk has been boiled-off it is run through a lapping machine which straightens the fibers. This machine forms the waste silk into a lap which is about 10 ft. long and 2 ft. wide and which weighs about 2 lb. Illustrations showing the lapping machine (Fig. 1) and other types of equipment described in this article were furnished by Franklin Machine Co., Providence, R. I.

Next, the laps are transferred to a machine (Fig. 2), called a filling engine, on which the staple is actually made by cutting with a sharp knife. In this country,

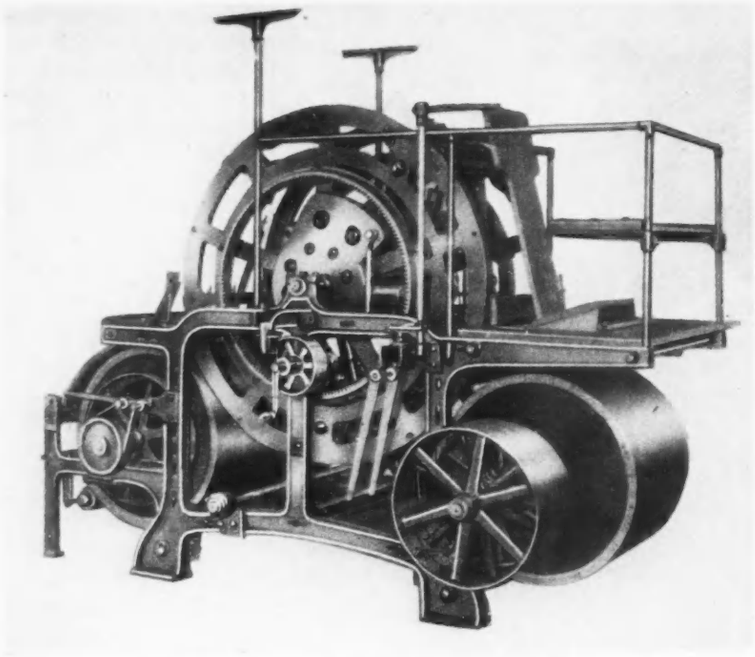


Fig. 3. Circular dressing machine for spun silk

the staple lengths are usually as follows; first draft, 6 in.; second draft, 4 in.; and third draft, 3 in. The product from these machines is called filling.

In the drafting operation the cut staple is transferred to a round kiln-dried stick about ½ in. in diameter and 30 in. long.

The filling engine is equipped with a stop motion which allows a predetermined amount of silk to be taken up on the filling sticks.

The silk is next subjected to a combing process, known as dressing. The dressing machine (Fig. 3) is equipped with slotted boards to hold the filling sticks as a huge spider revolves toward a set of rolls covered with a rubber sheet filled with needled pins, called a plastron. This operation is similar to cotton carding, but is much more crude, in that it is more dependable upon manual labor. The silk rides two revolutions in the machine. During the first revolution the stick is held firmly in the slot, thus allowing the silk to be combed; while during the second revolution the silk is gripped, and the stick is doffed by a mechanical contrivance, leaving a fluffy flag, as it is called. A complete flag consists of six to seven sticks of filling.

Lap Spreading

The dressed silk furnishes a supply for the next machine, known as a spreader, whose purpose it is to change the flag to a lap 10 ft. long and 6 in. wide, and weighing 5½ to 6 oz. The spread lap is fed into a drawing machine, called a gill head, which is equipped with traveling combs. Where another straightening of fibers is accomplished, and at the same time the lap is made into a sliver. The sliver is given five to six processes of drawing to bring out the final draft of predetermined length.

From here on the method of manufacture is similar to cotton preparing. Sliver of correct size is worked with a slight twist to lead-pencil diameter on a slubber and thence is taken to a speeder, where spinning roving of the desired size is made.

Much research has been done in the last two years on spun-silk spinning machinery, and the latest type of spinning machine consists of a draft-plate in place of the wooden and iron carrier rolls, thus giving a long-draft parallel spinning.

Singles yarn are made from first-quality stock having seven to twelve turns per inch, while ply yarns are made from second-quality stock twisted together. These are spun larger than the eventual size, and are singed or gassed to correct size. Singeing also burns off the loose ends. When the yarn manufacture is completed, the product is put up on cops for weaving, or in skein form, as the orders may read.

Theme of A.C.M.A. Convention to Be "The Cotton Farmer"

THE general theme of the 35th annual convention of the American Cotton Manufacturers' Association, at the Bon Air-Vanderbilt Hotel, Augusta, Ga., Friday and Saturday, April 24 and 25, will be "The Southern Cotton Farmer, or the Producer of Our Raw Materials."

According to an announcement from W. M. McLaurine, secretary and treasurer of the association, some outstanding speakers are being secured to discuss several phases of the inter-dependence of the cotton producer and the cotton manufacturer. The board of government will have its regular pre-convention meeting on the evening of April 23.

Reservations should be made with the hotel which has announced its rates for the convention as $10.00 per day, per person, American plan. Golf on the excellent courses at Augusta and a side trip to the Magnolia Gardens, at Charleston, S. C., which will be in full blossom, are offered as extra attractions for those attending the convention.

How Crossed-Warp Effects *for Women's Coatings Are Made*

By George Priestley
University of Leeds, England

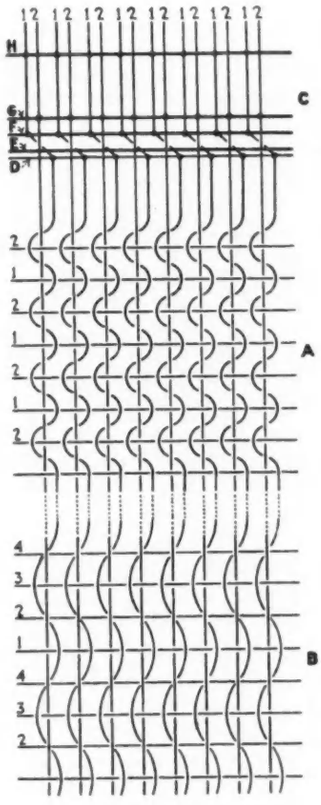


Fig. 1. A, plan of plain-gauze interlacing; B, plan of leno interlacing; C, harness draft for A and B

THE method of constructing fabrics known as cross weaving, and in some districts as gauze or leno weaving offers to the designer and manufacturer of fancy fabrics—especially those interested in women's coatings—a vast field for the production of distinctive and novel effects.

Until quite recently the principles of cross weaving appear to have been applied mainly in relation to fancy cotton, silk, and various mixed fabrics for dress goods, and to fabrics of a similar character. In consequence woolen and worsted designers, in a number of cases, have neglected to gain sufficient knowledge of the principles involved to enable them to develop successful styles adapted to their own particular requirements.

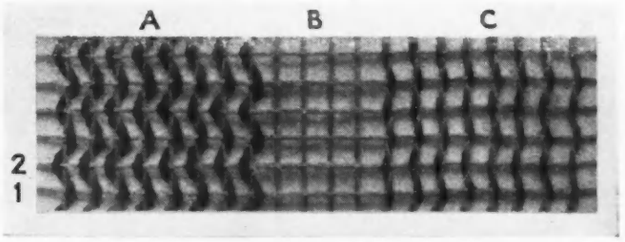


Fig. 2. A, plain-gauze fabric in which standard and crossing threads are separately tensioned; B, relationship between the ordinary warp and filling; C, plain gauze with standard and crossing threads equally tensioned

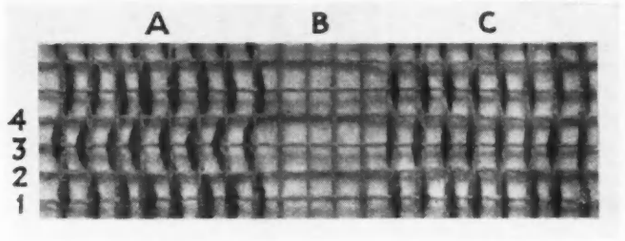


Fig. 3. Plain leno viewed under similar conditions

The structure of crossed-warp effects is entirely different from that of the ordinary type of fabrics in which warp and filling interlace with each other at right angles, although the base of such fabrics is composed of ordinary warp and filling. In addition to the normal ground threads and picks, a further series of warp ends—termed crossing threads—are manipulated to cross from side to side of one or more threads of the ordinary warp.

A line drawing showing a plan view of the simplest type of fabric of this character is shown at *A*, Fig. 1. This represents the method of thread interlacing of what is technically known as plain gauze. From a careful examination of the structure, it will be seen that ordinary warp—in this case referred to as stationary or standard warp—and filling are working at right angles; but in addition to these a crossing thread is also intersecting with the two series and is lifting over odd picks on the right-hand side of the ordinary warp and on the left-hand side over the even picks.

A coarse plain-gauze fabric is illustrated at Fig. 2, the warp and filling of which correspond to the interlacings in the flat view *A*, Fig. 1. In the first section *A* of Fig. 2 it will be noted that the dark crossing threads are lifted over each successive pick, first on the right of the stationary thread, then on the left—the filling floating over the whole of the stationary warp. The relationship of the latter to the filling will be more readily understood upon reference to *B*, Fig. 2, over which section the crossing threads are omitted. From this it will be seen that the stationary warp and the filling are bound together by the crossing thread interlacing under the stationary warp thread between each pick.

In the plan view *A*, Fig. 1, and in the corresponding fabric *A*, Fig. 2, it will be seen that the stationary threads are perfectly straight, while the crossing threads bend from side to side of these. This effect can only be produced when the two series of threads come from separate beams, in which case a considerably greater length of crossing warp is used as compared with the requirements of the stationary warp.

The effect produced by the use of one beam is illus-

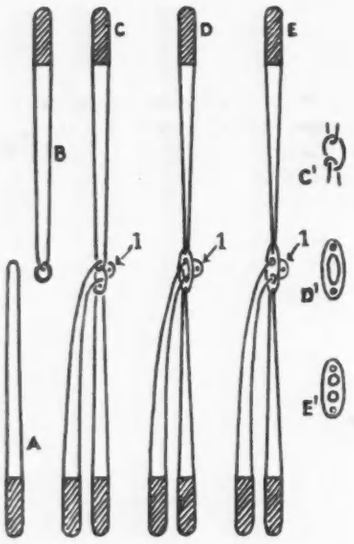


Fig. 4. Various methods of arranging doup and slip

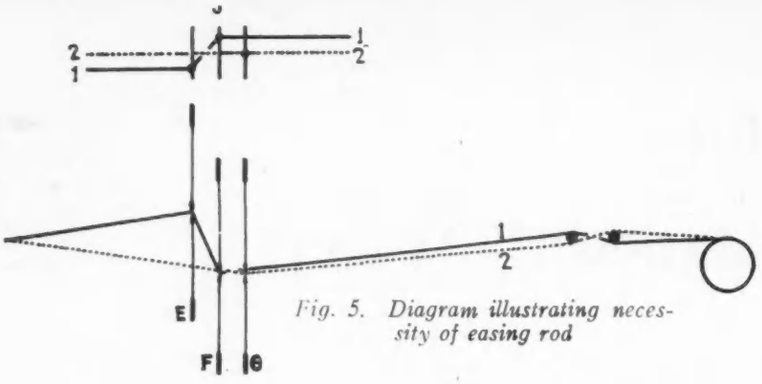


Fig. 5. Diagram illustrating necessity of easing rod

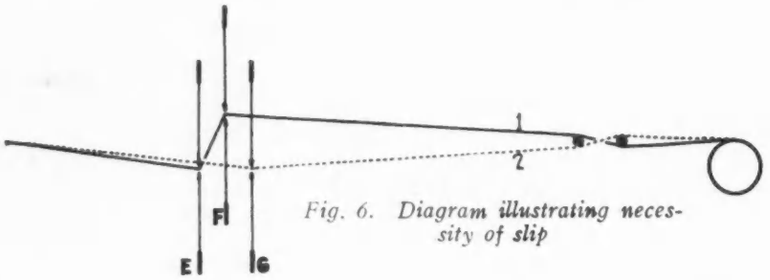


Fig. 6. Diagram illustrating necessity of slip

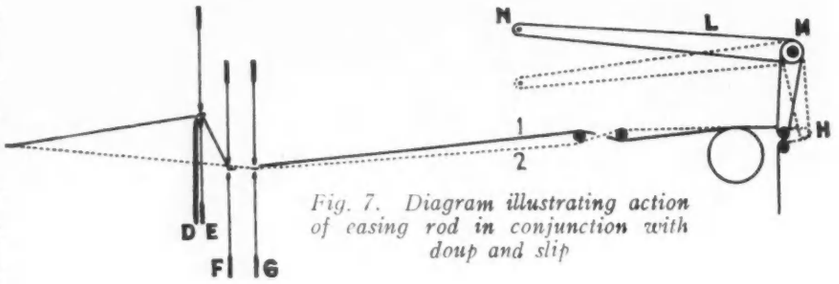


Fig. 7. Diagram illustrating action of easing rod in conjunction with doup and slip

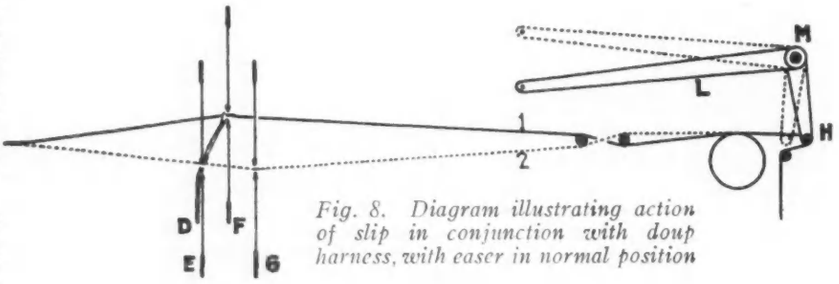


Fig. 8. Diagram illustrating action of slip in conjunction with doup harness, with easer in normal position

trated at *C*, Fig. 2, an examination of which will show that the two series of threads have a similar influence over each other, and in consequence each deflects the same amount from the straight condition.

Plain Leno

The flat view given at *B*, Fig. 1, shows another elementary crossed-warp effect, this being known generally as "plain leno." In this it will be noted that the crossing thread acts only on alternate picks, being controlled on the right-hand side of the stationary on the first pick, and on the left-hand side of the stationary on the third, successively repeating in this order every four picks. In the "leno" weave, the standard threads are also lifted over the whole of the even picks.

A coarse plain-leno fabric produced from one beam is illustrated at *A*, Fig. 3, the interlacing of the ground threads and picks being shown at *B*, Fig. 3. At *C*, Fig. 3, is illustrated the effect of this system of interlacing when produced from one beam.

It will be realized that in order to produce the crossed effect some special arrangement must be adopted in the harnesses controlling the two warps. The method of accomplishing this is shown in the drawing-in draft *C*, Fig. 1, where the horizontal lines represent the various harnesses required. These are known generally as follows:

D. Slip (sometimes called the doup).
E. Doup (sometimes called the standard).
F. Doup harness.
G. Stationary.
H. Easer rod (mounted at back of loom).

From this it will be noted that warp threads No. 1 and all odd threads throughout the warp which are crossing threads are first passed over the easer rod *H*, then through the mail of the doup harness *F*, under the stationary threads carried by harness *G*, and through the slip *D*, which works in conjuction with the doup *E*.

All the harnesses used are of the ordinary type with the exception of the "slip" harness *D*, which possesses only one heddle bar and is sometimes termed the "half-heddle harness."

The construction of the harness will be more clearly understood upon examination of Fig. 4, different types being shown here in their relation to the doup with which they are associated.

Two types of half heddle or slip (or, as it is often called, doup) are illustrated at *A* and *B*, Fig. 4, the former with the heddle bar—shown in shaded cross section—at the bottom, and the latter with the bar at the top. Either of these methods may be adopted; and, when one or the other is applied, reference to the system of mounting is known as bottom douping or top douping accordingly. The most common system adopted in practice is bottom douping, as it is generally more evenly applied and is also more simple to follow in designing.

The actual slip shown at *A*, Fig. 4, is simply a loop of cord attached to the bar, while the top slip shown at *B*, Fig. 4, embodies a bead or small ring through which

the crossing thread passes. The relationship of the slip to the doup (or standard) is shown by three methods at *C*, *D*, and *E*, Fig. 4. Enlarged views of the respective mail eyes of the doups are shown at *C'*, *D'*, and *E'*. In each case the bottom slip type shown at *A* is applied. The arrangement shown at *C* is the oldest type and is now seldom used. It consists of a cord arrangement through which the slip is inserted as shown.

As previously mentioned, the crossing thread is passed under the stationary from the doup harness and entered through the slip as shown by the dot at 1, Fig. 4. From this is will be seen that in the case of breakage of the crossing thread, the slip would still retain its position in the mail eye.

The combinations of doup and slip in most common use are illustrated at *D* and *E*, Fig. 4. In the former example the slip passes loosely through a large-eyed mail. In the event of a breakage of the crossing thread 1 the slip would naturally fall away from the mail eye as it is supported only by the crossing thread. When the slip falls away, it naturally drops on to the warp, and there is the risk of its becoming entangled with the warp threads. By the use of the type of mail shown at *E*, however, this would be prevented, owing to the loop of the slip being placed through the double-eyed mail. The disadvantage of the latter is that the continual passage of the slip through the mail eye causes more wear and tear on the slip than in the case of the one-eyed mail shown at *D*.

The adoption of beads or rings on the end of the slip saves the breakage of the slip to some extent, but in a crowded warp these devices occupy too much space, although of great use in coarsely set cloths when the warp is of a rough nature.

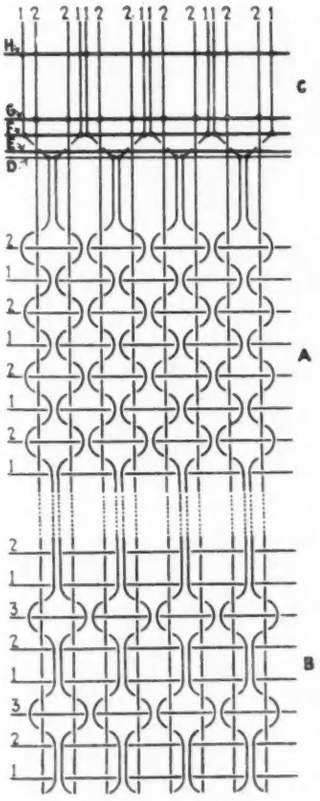


Fig. 9. A, modification of plain gauze by means of point drafting; B, further modification caused by alteration of lifting harnesses, both examples from draft C

Easer and Slip

The necessity for the easer and for the doup and slip in gauze mountings will be more readily understood from a careful consideration of the end view diagrams in Figs. 5, 6, 7, and 8, which should be studied in conjunction with plan view *A* and draft *C*, Fig. 1.

Fig. 5 illustrates the necessity for the application of the easing rod, while Fig 6 shows the necessity for the slip. In these diagrams three harnesses only are used, these being lettered *E*, *F*, and *G*. A plan of the draft is shown at *J*—the crossing thread being marked 1; and the stationary thread, 2. The corresponding threads are shown in the end view marked the same.

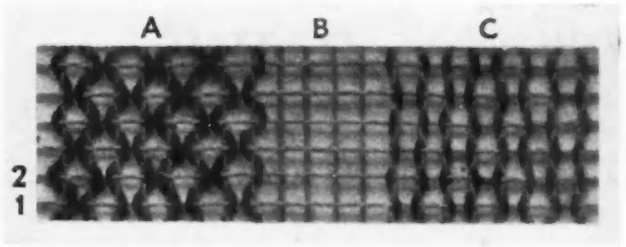


Fig. 10. Resultant effect of point drafting in plain gauze, conditions at A, B, and C same as Fig. 2

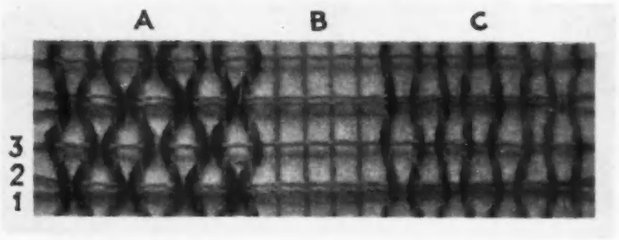


Fig. 11. Effect produced from point drafting as in Fig. 10, showing grouping of filling picks by altered lifting plan. Conditions at A, B, and C same as Fig. 2

By comparison with Fig. 3, it will be observed that the doup *E* (Fig. 5) carrying the crossing thread, is raised in order to produce a warp lift on the right-hand side of the stationary thread; but, in view of the crossing thread being entered also in the doup harness *F*, it would not be practicable to accomplish this, as the crossing thread would pull at the stationary. In all probability this would cause a breakage and would put an enormous strain on the crossing thread.

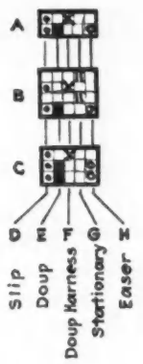


Fig. 12. Lifting plans for A, Figs. 1 and 8; B, Fig. 1; and C, Fig. 9

Whenever the doup effects a lift, the crossing warp must be allowed to ease or temporarily afford a sufficient length to compensate for the extra length required during the period of the doup lifts.

Fig. 6 shows the necessity for the application of the slip. In this case it will be seen that the doup harness *F* has lifted the crossing thread on the left-hand side of the stationary. With the arrangement as shown this would again be impracticable, as the crossing thread, being also entered in the doup mail, would be held down by the latter. No shed or warp opening would be effected through which the shuttle might pass.

The application of the slip attachment, and the easer rod, in order to correct the above deficiencies, will be understood from Figs. 7 and 8. In these illustrations the slip *D* is shown in conjunction with the doup *E*; and the easing lever *L*, controlling easing rod *H*, is applied at the back of the loom. The warp threads are entered in accordance with draft *C*, Fig. 1, the crossing threads passing over the rod *H*.

In Fig. 7 it will be noted that the doup and slip are lifted together, in consequence of which the crossing thread is raised on the right-hand side of the stationary in accordance with the first pick of the plan view *A*, Fig. 1. Concurrently with this, the easing lever *L*, fulcrumed at *M*, is lifted from its normal position, indicated by dotted lines, to the *(Continued on page 71)*

Thomas B. Hill Again Chosen Silk Association *President*

Thomas B. Hill, president C. K. Eagle & Co., New York, N. Y.

THE annual meeting of the Silk Association of America was held Wednesday at the association offices in New York. Election of officers for the ensuing year was a chief feature of the meeting. Thomas B. Hill, president of C. K. Eagle & Co., New York, was elected to succeed himself as president of the association. Mr. Hill also retained his post as chairman of the executive committee. The following were re-elected as vice-presidents: Paul C. Debry, of Duplan Silk Co., Wm. H. Hubbard, and W. R. Thomas, Jr., of Wahnetah Silk Co. Ramsay Peugnet was reappointed secretary-treasurer. Mr. Peugnet has a distinguished background of service with the association. He was secretary-treasurer from 1911 to 1921, when he left the organization for a brief period, returning in 1923 and has served continuously since the latter date.

Mr. Hill made an extemporaneous address, in which he urged cooperation rather than "survival of the fittest" policy. He said conditions in the industry will become much worse "unless there is a quick awakening by all of us." He added, that the silk trade has the ability, but lacks the spirit, properly to tackle its problems, and he stressed wider use of budgetary control in production, sales and finance.

The depression problems of the last year were reviewed in detail in the secretary's annual report. This report pointed out that the reverses which industry generally suffered during that year had constructive value in "bringing together association groups and uniting them in a common cause." Indeed, this thought was dominant throughout the supplementary reports submitted by different divisions of the association and embodied in the general report of the secretary.

"In times such as at present," the secretary stated, "closer cooperation than ever before is necessary in the silk trade." The secretary urged that all groups in the industry should face the coming season "in the spirit of cooperation which will build for the silk industry a basic rationalism that will assist in bringing business back into well balanced and profitable channels."

The summaries of the year's developments by chairmen of the different groups, offer an intelligent and comprehensive picture of conditions during 1930. James A. Goldsmith, chairman, reported for the raw silk classification committee, stressing such constructive moves as the decision of the Japanese to put into effect a single uniform classification, and also the merging of the Inspection of Bureau of the Silk Exchange with the United States Testing Co. E. H. Schniewind, chairman, reported for the committee on Research and Standardization, which was a new division appointed during the year; the committee at its first meeting recommended research subjects which might be undertaken by the Textile Foundation; consideration also was given to the idea of expanding research and statistical activities of the Silk Association.

The growing importance of the design piracy problem was reflected in the reports respectively of Paul Hyde Bonner, chairman of the advisory committee on design registration, and Sol C. Moss, chairman of the executive committee of the Anti-Piracy Group. Mr. Bonner urged manufacturers to greater use of the association's Design Registration Bureau, inasmuch as the Vestal Design Piracy Bill failed of passage in the late Congress and will have to be reintroduced. Progress achieved by the association toward better legal protection against theft, was described by H. B. Cheney, chairman of the committee on legislation.

The strong tendency toward Panama Canal routing for silk cargoes en route from Japan to this country, as against rail shipment was pointed out by the committee on transportation. Reports of a rail rate reduction brought a temporary increase in overland shipment, but this dropped when the rate cut failed to materialize.

The trade reports, while presented solely as individual opinions, carried broad interest. Goro Katakura, on raw silk, took a constructive attitude, and found the lessons of the 1930 slump as very valuable to the industry, both here and in Japan. Lucien Jouvaud, president of Universal Industrial Corp., found that "thrown silk sales are about holding their own." More practical standards for the broadsilk industry were strongly urged by W. R. Thomas, Jr., president and general manager, Wahnetah Silk Co. J. Ebert Butterworth, vice-president of H. W. Butterworth & Sons Co., Philadelphia, said machinery manufacturers had utilized the 1930 lull to develop many new types of textile equipment, and he told of a wide range of significant developments including reeling machines, looms, roller bearing spindles, etc.

The following have been elected to the board of managers: Albert Blum, United Piece Dye Works; Robert G. Blumenthal, Commercial Factors Corp.; Paul Hyde Bonner, Stehli Silks Corp.; Paolino Gerli, E. Gerli & Co., Inc.; William H. Hubbard, William Skinner & Sons; Gustav Oberlaender, Berkshire Knitting Mills; M. A. Salembier, Salembier & Villate, Inc.; W. R. Thomas, Jr., Wahnetah Silk Co.

Piece Goods Sales Hint Revival of Home Dress-Making

Index of Piece Goods Yardage Sales to Retailer 1928-1931

	1928	1929	1930	1931
January }	100	90	70	90
February }				

Note: These figures are necessarily arbitrary, but are based on estimated sales figures of several broadsilk houses specializing in piece goods for retail trade. The increase in piece goods sales in January-February period of 1931, brings volume back to 1929 basis; it should be remembered however, that these are yardage, not dollar figures. Prices in 1931 average 35% below 1929, so that the dollar value of the business is substantially reduced.

A STRIKING development of the opening months of 1931 in the broadsilk industry, has been the increased sale of fabrics through the retail store. This demand started on the up-trend shortly after New Year, and it has continued growing, until recently numerous important broadsilk mills were selling more piece goods to the retailers than to the cutters-up. The trend is significant, but whether it indicates a permanent change is open to conjecture.

For some years, retail sale of silk piece goods has been shrinking, and weavers were gradually coming to regard this market as of declining importance; it was believed, in many quarters, that women would eventually cease home dress-making and would depend entirely upon the ready-to-wear industry for outerwear. The new development, while too young to be taken as a definite negation of this theory, is growing rapidly enough to challenge attention. Broadsilk mills are operating at high pressure to meet retail demand. Business from stores is "better than it has been in years," to quote one sales executive. Piece goods buyers report exceptionally quick movement of silk yardage across the counter.

Several reasons for the trend suggest themselves. First, silk fabric prices are low, and women can make their own dresses economically; this is an important consideration at present, when so many families are obliged to curtail expenditures due to the industrial depression. Second, women express much dissatisfaction with current ready-to-wear dress lines; retail buyers discussing this point said the low price of ready-made dresses attracted customers, but the women frequently came back, complaining of the fabric. This is in line with recent developments in the dress trade. The industrial depression forced garment manufacturers to trade down and to keep on trading down, until, in an effort to hold their profit margin, they economized on materials and flooded the market with very poor quality dresses. Another argument in favor of home dress-making—one that carries more weight perhaps with women than any other—is the fact that it permits greater style individuality. The new long dress modes have emphasized the fashion factor, and women are eager to get away from "mass production" in their frocks and to avoid wearing garments which other women wear. These, at least, are the reasons most generally ascribed as responsible for the big jump in piece goods sales.

However these arguments may be regarded, the fact remains that weavers have difficulty in meeting retailers' demand for fabrics. The call is mostly for the better quality lines, and plain silks are preferred; plains are declared by the style-wise to be in the ascendant, the explanation being that prints have traded down to a point where discriminating women no longer want them.

The growing importance of broadsilks in the store is evident in recent retail selling events held by leading New York retailers. A merchandising executive of one store reported that piece goods volume in a recent sale were 60% above last year. The sales manager of a broadsilk house which specializes in catering to stores, said this was a low estimate; he said retail sale of piece goods by his house had gone up 80% since last year.

"The thing is really a 'boom' development," this factor commented. "We are behind in our deliveries to stores, while our sales to cutters are just carrying along at a comfortable pace. At first, piece goods buyers picked up large quantities of distress prints, but soon they turned to plains, and they report remarkable interest among customers for these dress materials. These buyers ascribe the new development to the fact that dress manufacturers have drastically reduced their lines; women find dress choices too limited as regards style; also they complain that they cannot get properly fitted. Buyers say the manufacturers, aiming to economize, cut their fabrics too closely and stint in making up garments."

The development also has given impetus to cotton fabric sales, and important retailers have complained of difficulty in getting delivery of desired cotton goods. C. G. Patterson, buyer of silk, rayon and woolen dress fabrics for Sears, Roebuck & Co., reports that sales in his department have increased nearly 100% above those of the same season last year.

Mr. Patterson attributes the increased retail fabric demand in part to better contact between the stores and the market through the retail buying office. Silk and rayon broadgoods both are moving spiritedly, he stated, and he noted a good call for printed rayon crepes.

The "boom" follows spirited discussion of this subject at the convention of the National Retail Dry Goods Association held recently in New York, during which a special meeting was devoted to the question: "Is the manufacturer and converter of fabrics neglecting the retailer in the matter of styles?" Speaking for the broadsilk industry at that meeting, Thomas B. Hill, president Eagle Silk Co. and president of the Silk Association, denied this claim, but suggested ways for closer cooperation between retail outlets and the weavers. His chief recommendation was for the appointment of a joint committee, including retail style authorities and manufacturers' style authorities, to meet periodically, decide certain fabrics to promote through the store, and then submit their suggestions respectively to the Silk Association members and the N.R.D.G.A. members. This project is now under consideration by these organizations.

Finding Maximum Settings for "Three-Layer" Fabrics

By T. Woodhouse, F.T.I. and A. Brand, A.T.I.

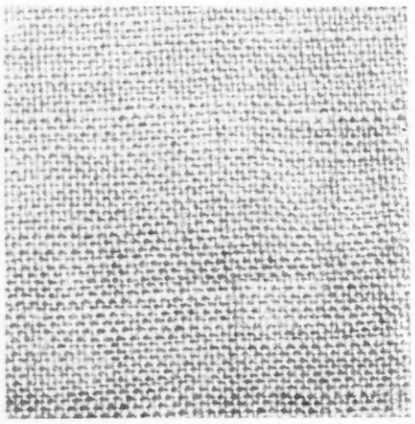


Fig. 26. A mercerized jute fabric

THE gradual change from a two-layer structure to a three-layer structure, when produced by successive increases in the number of warp threads per inch, is shown in Figs. 27 to 31 inclusive. In these illustrations no attempt has been made to show the compression that actually takes place in the loom during the operation of weaving (the effect of this compression has been discussed in previous articles). Consequently, in all the above figures, with the exception of the last, interstices varying from perfect squares in Fig. 27 to elongated rectangles in Fig. 30 are apparent.

The scale to which all five figures were originally drawn is shown under the warp section in Fig. 27; and on the same scale, particulars referring to the five different structures are as stated in the following table:

TABLE XIII

Number of figure	No. of units occupied by 8 warp threads	No. of units occupied by 8 filling picks	Ratio of length to width	Pitch of warp threads in units
27	8.000	8.000	1 to 1	1.03
28	7.143	8.343	1.168 to 1	0.893
29	6.286	8.743	1.391 to 1	0.786
30	5.428	8.800	1.621 to 1	0.679
31	4.571	9.142	2 to 1	0.571

Increasing Thread Diameters

A somewhat similar result to that described above is obtained by keeping the pitch of the warp threads constant, and by successively increasing the diameters of both warp and filling threads. The four changes in the structure by this method are demonstrated in Fig. 32. Here only the intersections through the warp threads are shown, but these are quite sufficient to prove that the final structure is a three-layer one.

It will be seen that in the intersection *D*, Fig. 32, the diameter of the warp and filling threads is equal to the pitch of the warp threads. For the sake of comparison, it should be noted that this illustration is drawn to the same scale as all the others; viz., that introduced at the bottom of Fig. 27. In Fig. 32 the diameters of the warp threads in *A*, *B*, *C* and *D* are in the ratio of 4:5:6:7.

Views of two different kinds of three-layer fabrics appear in diagrams *B* and *C*, Fig. 34;; and alongside these, on the left at *A*, for purposes of comparison, is a

MANY of our readers will remember the interesting series of articles by Messrs. Woodhouse and Brand on the analysis and synthesis of cloth structure which ran in TEXTILE WORLD from 1927 to 1929, inclusive. Since publication of the last installment of that series the authors have conducted extensive theoretical and practical research to check and revise their early findings and to round out their conclusions. The results of this work are presented in two articles, the first of which appears herewith. They are applicable to yarns and fabrics of all fibers.

In order that readers will not be obliged to refer to the previous series, and in order also that new readers may begin the discussion at this point, the conclusions already definitely reached are summarized in the two following tables:

SETTING OF WARP THREADS
for "Two-Layer" or "Maximum Perfectly Balanced Plain" Fabrics

Types of Cloth	Threads per Inch
Cotton	$\frac{32\ \sqrt{\text{Count of yarn}}}{\sqrt{3}}$
Spun Silk	$\frac{28\ \sqrt{\text{Count of yarn}}}{\sqrt{3}}$
Worsted Yarn	$\frac{22\ \sqrt{\text{Count of yarn}}}{\sqrt{3}}$
Linen Yarn	$\frac{16\ \sqrt{\text{Count of yarn}}}{\frac{\sqrt{3}}{120}}$
Jute Yarn	$\sqrt{3} \times \text{Count of yarn}$

WORKING DIAMETERS OF YARNS

Type of Yarn	Basis of Count	Working Diameter
Cotton	Hanks of 840 yd. in 1 lb.	$\frac{1}{32\ \sqrt{\text{Count}}}$
Spun Silk	Hanks of 840 yd. in 1 lb.	$\frac{1}{28\ \sqrt{\text{Count}}}$
Worsted	Hanks of 560 yd. in 1 lb.	$\frac{1}{22\ \sqrt{\text{Count}}}$
Linen	Leas of 300 yd. in 1 lb.	$\frac{1}{16\ \sqrt{\text{Count}}}$
Jute	Weight in lb. of one spyndle of 14,400 yd.	$\frac{\sqrt{\text{Count}}}{120}$

The articles in the previous series appeared Sept. 10, Nov. 12, and Dec. 17, 1927; Dec. 15, 1928; Apr. 20, Apr. 27, Aug. 31, and Sept. 28, 1929. Illustrations bearing the same figure numbers as others which appeared previously supersede the latter.—Editor.

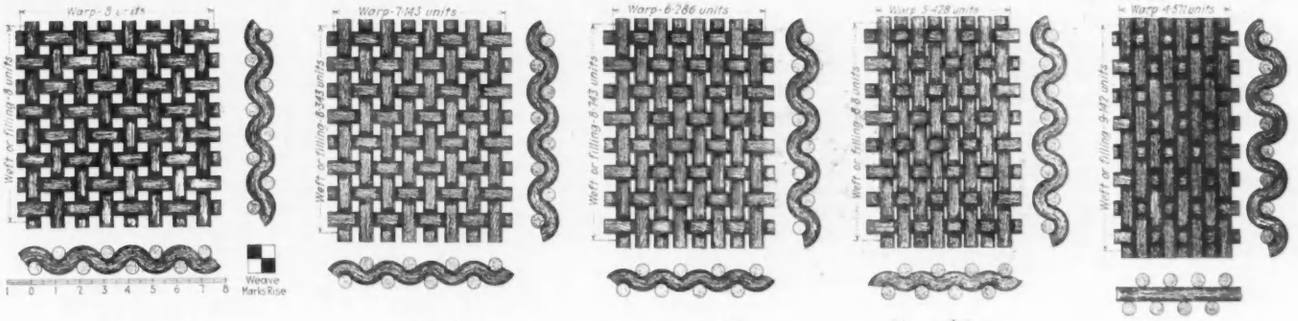


Fig. 27 *Fig. 28* *Fig. 29* *Fig. 30* *Fig. 31*

Evolution from two-layer to three-layer fabric obtained by increasing ends per inch

maximum two-layer fabric. All three intersections are to be taken as through the filling; that is, the stippled circles represent picks of filling in each case. In diagrams *A* and *C*, both warp and filling are of the same diameter. While the total thickness of the fabric *A* is 2 *d*, that of fabric *C* is 3 *d*. In diagram *B* the diameter of the filling is increased exactly to twice the diameter of the warp. In diagram *C* the intersection is identical with that already discussed, whereas diagram *B* may be taken as typical of a very common method of

Geometrical Constructions

IN DIAGRAM *A* of Fig. 33 is shown the geometrical construction which produces a two-layer cloth similar to that structure illustrated in Fig. 27. In diagram *B*, Fig. 33, is the corresponding construction for a three-layer cloth similar in structure to that shown in Fig. 31. Diagram *C*, Fig. 33, is part of diagram *B*, drawn to a larger scale.

To draw the intersection of the two-layer cloth with maximum structure, as shown in diagram *A*, Fig. 33, draw a horizontal line *DE* parallel to a second horizontal line *FG*, making the perpendicular distance between these two lines equal to half the diameter of the warp thread plus half the diameter of the filling pick. (If the warp and filling are of the same diameter, then the perpendicular distance mentioned is obviously equal to either the diameter of the warp thread or of the filling pick). On the line *FG* choose any center *H* and draw a circle equal in diameter to the warp thread. From the center *H* draw the line *HJ* at an angle of 30 degrees to the horizontal cutting the lines *DE* at the point *K*. With *K* as center, draw a circle to represent the second warp thread. From point *K* draw the line *KL* at 30 degrees to *FG*, cutting the line *FG* at the point *M*, which is the center of the third warp thread. Repeat the above construction as often as necessary in order to find the center of the remaining warp threads.

To show the filling in position, take point *H* as center and a radius *HN*, which is equal to half the diameter of the warp thread plus the full diameter of the filling pick. Now draw an arc of a circle which will be found to touch the periphery of the second warp thread that has already been drawn from center *K*. Repeat this construction with each warp thread in succession in order to form the complete intersection. To prove that the intersection contains two complete layers only, draw the horizontal lines *PQ* and *RS* parallel to the lines *DE* and *FG*, when it will be found that the lines *PQ* and *RS* are each tangent to the circles representing the warp threads and to the arcs representing the filling picks.

Diagram *B*, Fig. 33, shows the change in the positions of the warp threads when the structure becomes of the maximum three-layer variety. The construction to obtain the position of the first two warp threads of the maximum two-layer structure—i.e., the two threads having centers at *T* and *U* respectively—is the same as that already shown in diagram *A*, Fig. 33, but drawn to a larger scale for the sake of distinctness. To find the position of the second warp thread of a three-layer structure, draw the arc *UW* with center *T* and radius *TU*, and cut the horizontal line *TV* at point *W*. With *W* as center, draw the circle representing the second warp thread. With center *T* and radius *TX*, draw the arc representing the filling

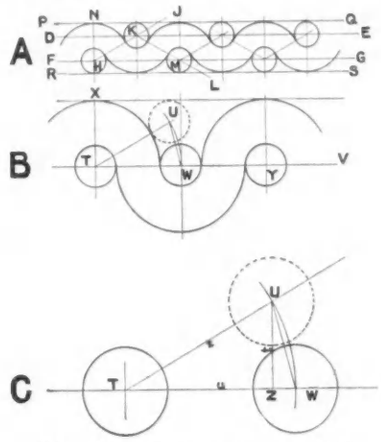


Fig. 33. The geometry of it

pick. This construction may be repeated for the third and succeeding threads, but it will be sufficient to mark off the centers of the third and succeeding threads by making use of the pitch *TW*. Thus, *WY* is made equal to *TW* in order to obtain the center *Y* of the third thread, and so on.

A further step may be taken by drawing the diagram *C*, Fig. 33, which is identical with, but again on a larger scale than, the corresponding part of diagram *B* in the same figure, and is lettered for reference in exactly the same way. An addition is made to the original figure by drawing *UZ* perpendicular to *TW*, and so forming the right-angled triangle *TUZ*. In this triangle, the angles themselves may be referred to by the capital letters *T*, *U*, and *Z*, respectively, the last-mentioned being the right angle; the sides opposite these three angles may be indicated by the corresponding small letters, *t*, *u*, and *z*, respectively. Now,

$TU = z =$ half the diameter of the warp thread + the diameter of the filling thread + half the diameter of the warp thread. And if the warp and filling are equal in count and of diameter d, then

$z = 2d$

$UZ = t = 2$ (half the diameter of the warp thread) $= d$

$$\frac{UZ}{TU} = \frac{d}{2d} = \frac{1}{2}$$

But, by trigonometry,

$$\frac{UZ}{TU} = \text{sine } T; \text{ hence sine } T = \frac{1}{2} \text{ and } T = 30°$$

The above demonstration proves the correctness of the method employed in the construction of the diagram *A*, Fig. 33.

$$\frac{TZ}{TU} = \frac{u}{z} = \cos. T = \cos. 30° = \frac{\sqrt{3}}{2}$$

$$u = z \cos. T = 2d \cos. T = \frac{2d\sqrt{3}}{2} = \sqrt{3}\, d$$

Hence, the horizontal distance between the centers of two successive warp threads, or the pitch of the warp threads, in a maximum perfectly balanced plain fabric of two-layer structure is $\sqrt{3}$ d, and the number of threads per inch in the warp (or the number of picks per inch in the filling) is as follows:

$$\frac{1 \text{ inch}}{\sqrt{3}\text{ d}} = \text{number of threads and picks per inch in a perfectly balanced two-layer plain cloth.}$$

It is easily seen by inspection of diagrams *A* and *B*, Fig. 33, that, in corresponding terms, the pitch of the warp threads in a three-layer fabric is 2 d, and the number of warp threads per inch in any given fabric of this type is as follows:

$$\frac{1 \text{ inch}}{2\text{ d}} = \text{threads per inch in a maximum three-layer fabric.}$$

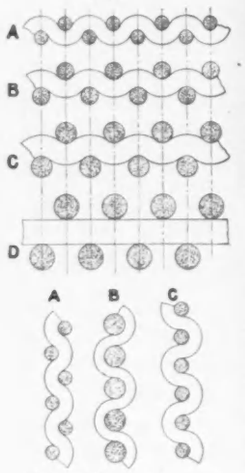


Fig. 32. Evolution obtained by increasing diameters of yarns

Fig. 34. A two-layer fabric and two kinds of three-layer fabric

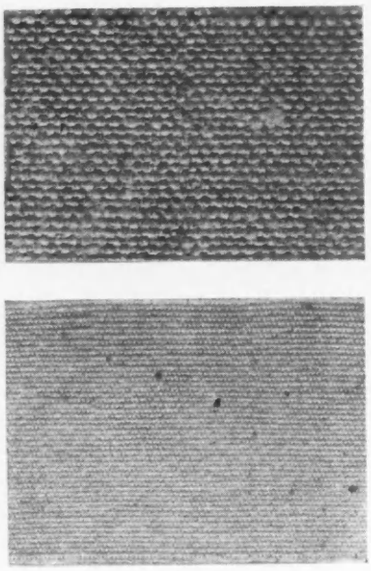


Fig. 35. Above, linen sail-cloth; below, cotton canvas

combining comparatively fine warp threads with thicker filling picks; nevertheless, the principles are the same.

The structure illustrated in diagram *B* is typical of that found in flax canvas or sail-cloth, and also in many heavy makes of cotton canvas. A sample of each kind is shown in Fig. 35, where the upper view is reproduced from a heavy flax canvas, and the lower view is taken from a corresponding but lighter cotton canvas.

Since there is so much difference found to exist between the diagrammatic representations of a maximum three-layer fabric as shown in the foregoing illustrations and the actual cloth as illustrated in Fig. 26, it follows that the results obtained by the usual methods of calculation and by drawings are not entirely to be relied upon. Hence it will be found both interesting and instructive to record the methods adopted to arrive at the result exhibited in Fig. 26.

From what has been demonstrated in previous sections, it may be safely concluded that in any calculation based on the hypothetical preservation of the circular form of the warp and filling, the diameter of the threads cannot exceed that of the same count of yarn in the form of a heavily pressed warp on a weaver's beam. Hence, in the authors' experiments—one result of which was the production of the fabric illustrated in Fig. 26—the working diameter of the yarn employed was ascertained by calculation based on the conditional density found in previous experiments and calculations. A comparatively thick yarn was adopted as likely to be the most satisfactory in the carrying out of the experiments, because it would be able to withstand the relatively large stresses encountered in weaving without an undue number of warp breakages. The count of yarn actually was jute of 16 lb. per spyndle, and three differently constructed yarns were employed, all having the same nominal resultant count. These yarns were as follows:

(a) 4/4 lb. per spyndle jute twist
(b) 2/8 lb. per spyndle jute twist
(c) 1/16 lb. per spyndle jute twist

Warps were specially prepared for the purposes of the experiments, each warp composed of stripes of the three kinds of yarn, and distinguished and separated in the loom by the insertion between each pair of contiguous stripes of two threads of dark-colored warp yarn of the same count.

It has been previously shown (TEXTILE WORLD, Dec. 17, 1927) that the approximate conditional density of jute yarn on the weaver's beam is 0.48; and with this figure as a basis it was subsequently demonstrated (TEXTILE WORLD, Dec. 15, 1928) that the working diameter d of a jute yarn is equal to $\sqrt{C}/84$, where C equals the count of the yarn in pounds per spyndle.

In the present case, therefore, the working diameter of the yarn employed was as follows:

$$\frac{\sqrt{C}}{84} = \frac{\sqrt{16 \text{ lb.}}}{84} = \frac{4}{84} = \frac{1}{21} \text{in.}$$

Since the setting of the warp for a maximum three-layer cloth is equivalent to the reciprocal of the working diameter of the warp yarn, it is clear that there should be 21 threads per inch in the warp when the warp count is equal to 16 lb. per spindle. The nearest setting that could be obtained under working conditions was 21.62 threads per inch in the reed.

Further, the setting of the filling in a maximum three-layer fabric of the type under discussion is exactly half that of the warp setting; hence the take-up mechanism of the loom was arranged to give the following number of picks per inch:

$$\frac{21.62 \text{ threads per inch}}{2} = 10.81 \text{ picks per inch, as}$$

nearly as possible.

A portion of the fabric thus woven is reproduced in Fig. 36, and the warping particulars of the width indicated are as follows:

Section *A*
- 1 thread dark-colored jute
- 22 threads 4/4 lb. natural jute

Section *B*
- 1 thread dark-colored jute
- 1 thread dark-colored jute
- } equal to 2 threads
- 22 threads 2/8-lb. natural jute

Section *C*
- 1 thread dark-colored jute
- 1 thread dark-colored jute
- } equal to 2 threads
- 22 threads 16-lb. natural jute
- 1 thread dark-colored jute

In all sections 21.62 threads per inch in the reed.

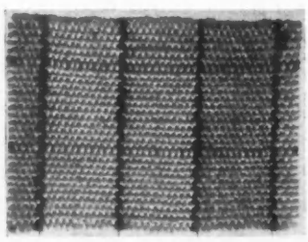
The filling was inserted in the following order:

1 pick dark-colored jute
11 picks 4/4-lb. natural jute
10.81 picks per inch in the loom.

The fabric illustrated in Fig. 36 was found to be a well-made, substantial cloth, but it was not a maximum one; and it proved quite definitely that the basis chosen for the setting of the fabric—viz., the working diameter of the yarn calculated as above indicated—could not be correct. The continuation of the investigation had therefore to be carried out from the point of view of actual weaving.

In the succeeding experiments, therefore, the same warp was used as in Fig. 36, but the number of threads per inch in the warp was successively increased until it was found impossible to introduce a number of picks equal to half the number of threads per inch.

The patterns woven under these conditions, other than that shown in Fig. 36, are illustrated in Fig. 37. The various particulars of these four fabrics are summarized for ready reference and comparison in Table XIV.



A, B, C,
Fig. 36. Four-ply, two-ply, and single warp threads of equivalent counts

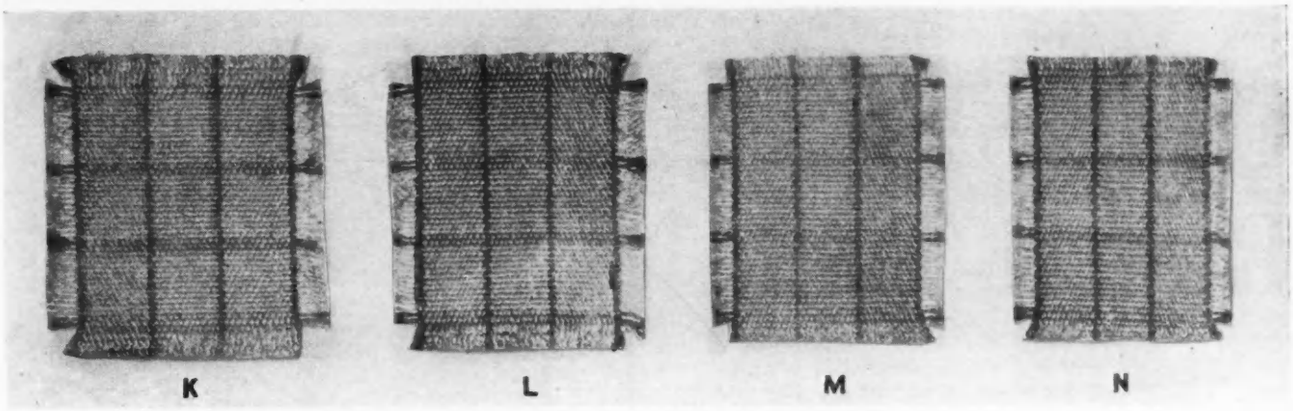


Fig. 37. Fabric woven for experiment

TABLE XIV

Reference letter	Threads per inch	Picks per inch
K	23.78	12
L	25.95	12
M	28.11	12
N	30.27	11

After the experience obtained in the weaving of the fabric reproduced in Fig. 36, it was decided to attempt to weave all the four fabrics illustrated in Fig. 37 with 12 picks per inch. The attempts were quite successful for fabrics *K*, *L*, and *M*, Fig. 37, but not for the fabric *N* in the same figure. In the case of pattern *N*, it was found possible to insert only 11 picks per inch. It was therefore taken for granted that fabric *N* represented an actual maximum three-layer fabric in which there were 30 threads per inch, and in which the working diameter of the warp yarns was calculated to be 1/30 in., thus:

$$\frac{\sqrt{16 \text{ lb. per spyndle}}}{120} = \frac{4}{120} = \frac{1}{30} \text{ in.}$$

It therefore appears to be proved that the number of threads per inch in a maximum three-layer, warp-faced fabric, is that represented by the reciprocal of the diameter of the warp yarn calculated as indicated. If similar assumptions are made with regard to the conditional densities of cotton, woolen, worsted, linen, and spun-silk yarns, the warp settings for three-layer fabrics of the type under discussion can be obtained from the reciprocals of the diameters of the yarns, calculated according to the formulas appearing in Table I (see introduction to this article or TEXTILE WORLD, Nov. 12, 1927, page 44, and Dec. 15, 1928, page 47).

All of the fabrics illustrated were actually woven in a hand loom, and direct measurements, as well as direct observation, showed that in each case the cloth width of each fabric was definitely greater than the reed width; particulars of these reed widths appear in Table XIV. This fact goes to show that the warp threads were in lateral compression during passage through the reed, and collectively they expanded on rejoining freedom.

The extent to which the warp threads are compressed in any particular case depends to some extent on the nature and structure of the fabric, and the fibers of the yarns naturally move along the lines of least resistance. If comparisons are made between the yarns used in the weaving of a maximum two-layer fabric, such as is illustrated in Fig. 13, and a maximum three-layer fabric, such as *N* in Fig. 37, it will be seen that there are relatively obvious differences in the compression of the yarns as evidenced by the degree of corrugation, and evident, but less obvious, differences in the apparent diameters of the yarns, although all the yarns are of the same count. The actual working diameter of the yarn must thus be an average of the different diameters obtaining under different conditions in the fabric.

Judging from the appearance only of such yarns, the filling pick in a maximum three-layer fabric is as nearly circular as one would expect it to be, and it is safe to assume that its diameter is at least very approximately equal to what has been termed the theoretical diameter, since the filling pick has not been subjected to the same compressive forces as the warp threads. If one neglects the small tensile stress in the filling due to the pull of the shuttle, the threading of the filling in the shuttle, and the resistance to unwinding of the filling from the cop or quill, and if one also neglects the increase in the width of the cloth as the reed moves forward to its beating-up position, the major part of the total stress in the filling is compressive. On the other hand the stresses in the warp are definitely of a dual nature; viz., a tensile stress due to the maintenance of the tension required for satisfactory weaving and a compressive stress due to interaction of the warp threads and the filling picks.

The condition of the filling pick referred to in the above paragraph is very similar to that of the warp threads on a weaver's beam, and, indeed, this is the main reason for assuming that the diameter of the filling may be taken as equal to that of a yarn of which the conditional density is 0.48. As already shown, the diameter of a 16-lb.-per-spyndle jute yarn on this basis is 1/21 in. In a theoretical maximum three-layer fabric the correct number of picks per inch should be half the number of warp threads, so that one would expect such a fabric made from 16-lb. jute yarn to contain 21 threads per inch and 10½ picks per inch. It has been obvious, however, that in fabric *N*, Fig. 37, 11 picks per inch can be inserted; hence the actual number of picks is ½ ÷ 10½ or 1/21 more than calculated from theoretical yarn diameter.

Allowing for experimental errors and for the fact that Fig. 37 was produced in a hand-loom (and was therefore subject in greater degree to the operation of the human factor), consideration of the results of the foregoing calculations and experiments goes to show that in fabrics of the type under discussion, the maximum number of picks per inch is practically equal to half the reciprocal of the theoretical diameter. This of course applies only to fabrics in which warp and filling yarns are of the same count. It is recognized, further, that in many three-layer warp-faced fabrics, the filling is definitely thicker than the warp; nevertheless, it is quite possible that the finding just stated will be found applicable, with slight modifications, to any particular case.

Overseers' Round-Table

THIS department offers a new subject for discussion each week and gives readers' comments on problems introduced during previous weeks. The subject which was opened four weeks ago is closed this week and a summary of contributed ideas is given on opposite page

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Current Business Conditions

Editor, Overseers' Round-Table:

THE depression began when prices for the dominating raw materials slumped. This caused wholesalers, as well as retailers, to stop further buying in order to dispose of their stocks. The consuming public limited buying to bare necessities, awaiting further price cuts.

Mills, in general, failed to curtail production promptly, causing the accumulation of huge stocks which had to be dumped on the market at disastrously low prices, causing further disturbances and still more hesitant buying. Curtailed production, and more economical production, together with better leveled and proportioned wages and prices will soon result in firm and settled markets. FRED A. RODENBECK.

Editor, Overseers' Round-Table:

ARE present conditions due to overproduction or underconsumption? If the former we have too many mills; if the latter we have not enough people. This brings up the question of home consumption and exports, and one thing that is certain is that exports will decrease more rapidly in the future, because customer nations are reaching out for independence and building mills and machinery manufacturing plants of their own. To take a more concrete case than our own, consider Lancashire, the center of the world's cotton trade. Japan now produces all its own requirements and exports to China and India, markets that once were Lancashire's. These same conditions will slowly, but surely, cause trouble for the U. S. cotton trade.

There was a time, 20 or 25 years ago, when the cotton mill was a gold mine. Well, when a gold mine is discovered there is a rush and the thing is overdone, overworked and exhausted. A. COOPER.

Editor, Overseers' Round-Table:

WHAT IS wrong with the textile industry is very largely the same thing that is wrong with most other industries at this time. That is, a production capacity larger than is necessary to provide the current demand under existing conditions. Too many new mills have been started and old mills have grown too fast. It seems obvious that the reason for this condition is that there have been big profits during certain periods in the past. As "Danny" puts it there has been too much "gravy."

Not until some practical way is found to control, not only the textile industry but all industry, can we avoid these backward and forward swings of the pendulum.

Not having, at present, any way to control either profits or expansion it is a plain case of the survival of the fittest, or, to use a term more commonly applied to industry, the survival of the most efficient. J. R. COOK

Editor, Overseers' Round-Table:

WHAT DO you think is the cause of current conditions in the textile industry? I would say that too much of anything lessens the value of whatever it might be.

As a result goods would not sell at the high prices and there was not enough business to keep all hands working. Then the lay-offs began, and when a worker was laid off his pay stopped and there was no money to lay out for

Overseers Discuss Salaries

"I HAD to hire a new stenographer this morning," Superintendent Chase addressed the overseers, "and, while that isn't important in itself, the thought kept occurring to me whether it would be better for her to tell me how much she wanted a week, or whether I should tell her that the job payed so much and she could take it or leave it. This same question always comes up whenever I have to hire anyone and I'd like your opinions of whether it is better to base the pay on the job to be performed or to base the pay on the capabilities of the person applying for the job."

"If I get you right, boss," Bill spoke up, "you are wondering whether there should be a standard rate of pay, say for an overseer in a certain department, or whether you should pay the overseer according to how good he is. Well, I'm certainly in favor of paying each overseer what he is worth and no more and no less. You take one overseer who isn't particularly good in a department and then have him replaced by another who cuts costs and gets out production. Do you think that the second overseer should only receive the same pay as the first? I should say not. Just because two men happen to be both called boss weavers, or boss knitters, doesn't mean that they are both worth the same to the company. What is more, I am pretty much in favor of letting each man set his own rate, because then he thinks that he is being treated squarely and he works like mad to be worth what he said he was. Naturally, I wouldn't hire a man if I didn't think he was worth what he asked, and I would let him go if I did hire him and then found out he was just bluffing."

"I think you go too far," Hank jumped in, "because there is a lot to be said for standardized salaries. Running a certain department, and running it well, is worth just so much to the company. If you put an overseer in the department who isn't worth that much then he is inefficient and losing money for the company in many ways and he should be let go. On the other hand, if you have a man in there who is worth more, then he has the

and the Job

wrong job, because no matter how good he is he couldn't make the department run enough better to justify a higher salary. Then again, standardized pay for overseers would eliminate a lot of jealousy. You all know the grumblings about Whois getting more than So-and-so for the same job. I'd like to hear some more on the subject."

"I have always thought," Pete said, "that a lot could be done in standardizing salaries and a lot could not be done. To explain, I think that the greater the skill and intelligence required the more difficult it would be to set standard salaries. A girl in the office doing certain clerical work is only worth so much no matter how good she is, but you couldn't set any definite salary to be paid anyone who happened to be president, because a president can do so very much more to make or break a concern. I think overseers are in between and I would, therefore, suggest maximum and minimum salaries. Say that running a certain department is worth somewhere between two figures and pay the individual overseer what he is worth between these limits."

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"Do *you* think that overseers' salaries should be based more on the job to be performed or the ability of the individual?

Overseers and others are invited to discuss this and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

furniture, clothing and the other things of life so much needed. It is the workers who produce the goods and they also consume most of the goods produced.

I would say, give the workers work to do and then they will have money to spend and business will soon get better.

WM. A. SCHOEN.

Editor, Overseers' Round-Table:

I AM inclined to agree with Joe, most of this talk is bunk. The textile industry, like other industries, is going through a cycle of depression to eliminate which seems impossible.

Regardless of merchandising plans or salesmen, when we produce more goods than the public can consume we are going to have a period of dull times. The old law of supply and demand is still in working order. Our captains of industry, like the rest of us, seem not to have learned anything from past experience. With child-like faith they kept everything running at top speed, failing to realize that there is always a lull after a storm. G. G. HURD.

Editor, Overseers' Round-Table:

THE DECLINING activity in the textile industry is probably due to the fact that sales research, by which is meant market study and analysis, has failed to keep pace with technical research in the laboratory and mechanical research in the field, both of which have contributed to the short cuts in manufacturing methods.

The industry is stifled by the absence of large consumer buying. We are selling to an over-cautious buyer whose inventories are the lowest in years and inadequate to meet the public demand in times of normal consumption. The industry is suffering more from underconsumption than overproduction, due, in part, to the reduced purchasing power of the public and, in part, to the tendency of the public to save, or attempt to save, more when times are bad. H.S.D.

Editor, Overseers' Round-Table:

I THINK Danny, Pete and Joe are all right in giving causes for the current condition of textiles.

Danny hits the right spot when he speaks of overproduction and a child-like faith in rushing up mills and no end of night work and overtime.

Pete seems to think that poor merchandising has a lot to do with textile conditions. Some of the new mills which have been built in the last few years learned from 1929-1930 experience that merchandising comes ahead of production and will reverse their methods in the future. W. D. C.

Intoxicated Workers

Editor, Overseers' Round-Table:

I THINK that when a man who is employed in a mill comes in drinking and acting like a fool, as most of them do, he should be sent away for good, for no one can do his work satisfactorily while under the influence of liquor. When you discharge two or three men like that you will not have any further trouble with the rest of your employees.

We can't prevent our employees from drinking while off duty, but if they do this very much they are not in condition to do efficient work the next day and finally will have to be discharged. If you want to keep experienced help the best policy is to get good, sober help. W. H. HAND,
Anderson Hosiery Mills.

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Summary of Discussion on Current Condition of Industry

A great deal of interesting material was brought out in answer to the question of what brought about unsatisfactory conditions in the textile industry. The material is difficult to classify, but the cause which was most frequently mentioned was that insufficient research and attention had been given to merchandising. It was pointed out that overproduction in itself was an evidence of improper sales thinking. Other views which were widely held were to the effect that the textile industry was an old industry, clung to old methods and old machinery, paid low wages and worked long hours, and that there was not enough spirit of cooperation.

Questions and Answers

We undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to TEXTILE WORLD. We do not undertake, however, routine analysis of yarn or fabric, or investigation involving unusual expense.

Inquiries should give the fullest information and data possible. In the case of damage to material, a sample should be sent. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as evidence of good faith.

Letters expressing opinions or voicing criticism are cordially invited. These will be signed by the correspondent's name unless the letter itself contains a request that the name be withheld.

—EDITOR.

Effect of Ply Twist on Single Twist

Technical Editor:

In your interesting article on twist (No. 7445, Feb. 21, Page 38), you state that the question as to whether or not ply twist takes out single twist turn for turn has been debated many times, although you believe it to be so and demonstrate the fact. It is, however, hardly debatable. Rather it is an established fact easily demonstrated in a number of ways, but most easily and conclusively on a 10-in. twist tester.

In the two-ply examples you give the following twists: ply twist, 23.48; single twist, 23.2. While the yarn size is not given, the twist would suit a 30/2. If this thread were intended for sewing purposes, the fact that the ply twist takes out practically all of the single twist is not in its favor, as a sewing thread without single twist is inclined to be too soft and apt to fray in the needle during the stitching operation. If the single twist had five turns more, a firmer and better-balanced thread would result.

One prominent manufacturer makes a 30/2 sewing thread with 23 turns in the ply twist and 3.25 times the square root, or 17.78 turns, in the single, resulting in a thread with five turns in the single but in the same direction as the ply twist. This gives a compactly made thread; and, although it is twist on twist it does not seem to cause any trouble in operation—such as kinking, for instance.

The second part of your reply was not quite clear, where you give headings of plies in rayon sewing thread. Being cabled twist, the single and two ply would be in the same direction, thus increasing the single twist by the amount of the two-ply twist. The second, or six-cord, twist would take out two-ply twist to the amount of the six-cord twist inserted and would leave in the single yarn its original amount of twist, plus or minus the difference between the turns per inch of the two-ply and six-cord twists. A 32 six-cord sewing thread, for example, recently tested had been given a single twist of 17.25 turns, a ply twist of 17.1 turns, and a six-cord twist of 15 turns, leaving 2.1 turns of two-ply twist and 19.3 turns in the original single yarn.

It is the combination and direction of twists that give six-cord sewing thread its elasticity, a characteristic more valuable in the days of hand sewing and in the early days of sewing machines than today. ROBERT WILSON.

In getting the figures of the second table in our original reply, the cabled yarn was untwisted with a result of 2.26 t.p.i. in the second twisting. This left the ply strand, from the first twisting, as it was in the creel of the second twister. The twist was then taken for these ends, showing 15.07 t.p.i. actual twist from the first plying. Then a cabled yarn was set in the twist counter. All but one of the ends was cut and taken out by untwisting from the one remaining. Then the twist was counted in that one, and this proved to be 12.71.

If these were cotton yarns, it would be equivalent to saying that spinning with 15.07 t.p.i. and twisting in the opposite direction with 2.26 t.p.i., would give a yarn with 12.71 t.p.i. as it stands in the ply. The twist removed from the original yarn is slightly modified, of course, by elongation and contraction.

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Dyeing Mohair Upholstery Fabrics

Technical Editor:

Should cotton-back, mohair-face upholstery be dyed in two baths or one? What class of dyestuffs is needed for the mohair? (7471)

The better grades of mohair plushes have the back already dyed with either surfur, naphthol, or developed colors. The face is then dyed with fast colors in a single bath. Plushes with a white back may be dyed with fast, direct colors in a single bath to which the necessary neutral-dyeing acid colors have been added for shade. It is not advisable to run such fabric any longer than is absolutely necessary; otherwise there will be so many breaks and creases that proper finishing will be impossible. Pile fabrics are the most delicate to handle, and other types will stand more handling without damage. Either a solid shade or a shot-dyed, two-tone effect may be produced in one bath. There are fast cotton colors which will not tint the mohair, and there are neutral-dyeing wool colors which do not tint the cotton. Both classes may be applied at a boil from a bath made faintly alkaline with sodium phosphate.

If fastness to light is the main requirement, you may have to first dye the mohair with fast acid or chrome colors, wash the fabric, and dye the cotton with direct color in a fresh bath. The method of working will depend on the fastness requirements.

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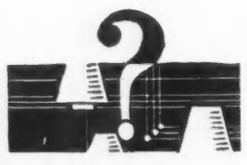
Shifting of Threads in Silk Fabric

Technical Editor:

We herewith submit the following samples: S-1396-A and S-1396-B. These are all pure-dyed, and the constructions are as technically right as they can be, especially the samples made on 64/3/3, 84 picks, six thread, and 64/3/, 88 picks, four thread. Pieces made in these constructions were samples, pure dyed by one of the best pure dyers; and every one of these pieces shifts. We should like to know where the shifting comes from. If you should know of any



better constructions than given to you herewith, please advise us. (7495)

We have carefully analyzed the above swatches for shifting and find that this defect is not caused by the loom. In our opinion, it is caused by the frame in the finishing process. If you put these samples under a glass you will notice that the filling threads are pulled very straight across the width of fabric. In materials of this construction, where a high twist is used, the filling should kink and lie a little irregularly, thereby holding the warp threads in place.

As to the constructions of these fabrics, we suggest that you change them to an eight-shaft 4/2 in a 70 reed. This will give you a slight change in number of ends per inch; but the results obtained will be worth it, for you will make a decidedly better piece of merchandise.

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Finishing Cotton Sheeting

Technical Editor:

We are enclosing a sample of sheeting and shall appreciate any information which you may be able to give us as to the best method of starching and finishing this piece of goods. (7480)

To finish this type of material, the dyed and dried cloth should be run from a box through a starch mangle directly into the nip, batching on a roll at the back of the mangle or running into another box. It is preferable to use a mangle with a metal roll on the top and a lapped wooden roll on the bottom. The starch mixture should be made by boiling about 25 lb. of cornstarch and about 5 lb. of sulfonated tallow softner in 100 gal. of water until all the starch is broken up. Generally about 15 min. is required. After drying, the cloth should be dried and conditioned until it has regained its full moisture content.

The goods should next be batched on rolls and run through three to five nips on a cold calender. The calender should be equipped with a barrel expander over which the cloth should run before it enters the first nip. It should also have a suitable braking device so that the tension can be adjusted to control the finished width as the roll is being calendered.

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Needles Missed in Warp-Knitting

Technical Editor:

Enclosed you will find a piece of milanese fabric, regular stitch, made of two 13/15-denier threads thrown together and boiled off. You will notice there are small imperfections which do not follow the same needle but are scattered over the whole piece. These imperfections occur only when knitting soft silk. When knitting gum singles and rayon warps in the same machine, these imperfections do not occur. Would like to find out what I could do to remedy this condition and what causes it.

You will also find a piece of tricot fabric, regular stitch, bottom warp of 20/22-denier gum silk, and top warp of two 13/15-denier threads boiled off. These imperfections do not follow the same needle, but are scattered over the piece and occur at different intervals.

This occurs only when knitting gum silk in the bottom warp. The piece marked "X" is milanese cloth in gray. The piece marked "XX" is tricot cloth that is finished.

THOUSANDS of inquiries are handled annually by the Technical Editors. In order that as many readers as possible may benefit from this service, we select problems of general interest for publication each week.

Kindly advise what would cause these defects. (7492)

Inspection through the microscope shows that these imperfections are caused by a strand of yarn from one warp missing a needle occasionally. If this were a filling-knit fabric, a drop stitch and a "run" would occur.

No definite proof can be derived from the samples as to the cause of these defects. It might be said, however, that it is more difficult to control the tension positively on a boiled-off silk than on a gum silk. If an end should run a little slack, it might miss the needle, especially if it caught on the gum-silk end which is racking in the opposite direction. Knowing the nature of the defects may make it possible for you to determine their cause.

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Knitted Fabric for Shoes and Slippers

Technical Editor:

We enclose herewith a sample of knitted fabric used for making felt shoes and slippers. We should like to make some of this material and are writing you to ask your opinion as to how it should be made. The writer expects to make up a sample lot shortly on the 35-in., 10-gauge Tompkins cylinder, set up with two backing wheels and using a nine-cut, hard-twist wool spun yarn on the needles; and two-ply, seven-cut, soft-twist yarn on the backing wheels. There are two backing wheels on this set-up containing 36 blades, blocked one and two.

We do not know how to get the stiff finish on this material, whether it is the class of stock used or whether there is some sizing or finishing material worked into the fabric when in the scouring bath. This fabric is supposed to weigh 40 oz. per yd. after finishing and to measure 60 in. in width split.

We note that this sample has apparently been piece dyed and that the dyestuff failed to penetrate thoroughly. It also appears that there is a hair of some kind in the mix, although this may be very coarse, short wool.

Any information you can give us, particularly as to how to make a cloth of this kind stiff enough, will be greatly appreciated. (7469)

We have examined this small sample of fabric and have endeavored to pick it apart so as to get at the yarn size. It is so well felted, however, that it is very difficult to separate the yarn. We succeeded in taking off about five courses, and are inclined to believe that the same kind of yarn is used on both face and back.

This yarn, when dissected appeared to be a three-ply yarn, as is shown in the accom-

panying illustration. The actual size of the yarn which we were able to ravel out of the goods is approximately twice as large as shown. We feel that it is about a seven- to nine-cut, three-ply yarn. We are of the opinion that a 35-in., ten-gauge Tompkins machine will make a similar fabric. It appears, however, that there is no necessity for using a backing yarn. The fabric is apparently a plain jersey; the rib side is the one with the thin hair face, and the reverse side is the one with the heavier cover on the surface. Owing to the small size of the sample, it was difficult to determine the characteristics with any great degree of accuracy.

We believe that the yarn is a mule-spun yarn. The wool is composed of kempy wool, shin wool, and a coarse garnetted sweater clip. The longest staple appears to be about $1\frac{3}{4}$ in. The entire fabric is not destroyed with caustic soda, showing that there is some vegetable fiber. We could not use a large enough sample to make a quantitative test, but judge there is about 5% of fairly long vegetable fiber. This is probably a flax noil used to assist in spinning, or it may possibly come from the garnetted stock.

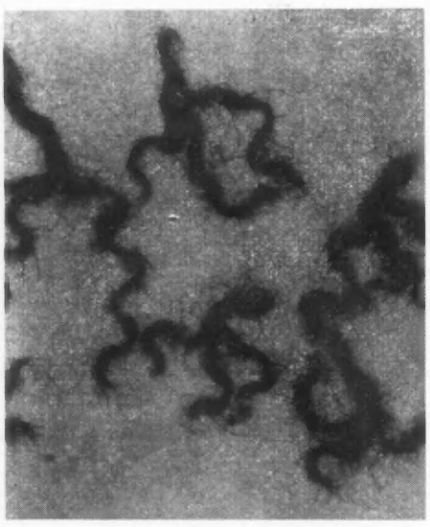
We believe that the stiffness in this fabric is due to the method of fulling the goods. From the feel and handle and the way the stock picks apart, we judge that this piece of goods has been fulled in a kicker fulling mill with acid, and not with soap. This was probably fulled with a 2° Tw. sulfuric acid solution until the goods were down to proper width, say 31 in. for the tubular width. After fulling, the goods were washed thoroughly to free them from acid. Probably a small amount of soda ash or other alkali was added to the wash-water to insure neutralization of the acid.

The goods were apparently dyed with logwood and some fustic or cutch to shade the logwood, using the one-bath logwood dyeing process which employs copper sulfate and soda ash to fasten the color. The lack of penetration of color may have been caused by insufficient time in the dye kettle, it may have been due to the acid not being all neutralized after fulling, or, more likely, a combination of both.

These goods are best fulled or partly fulled in the tubular form, and then split for the balance of the fulling and dyeing. Acid fulling and natural dyestuffs, like logwood, will give the goods this peculiar feel; and sizing is seldom needed. If there is any size in the goods, it is a glue size, since we can locate no starch or dextrin particles in the stock. If it is found necessary to size the goods, we suggest that they be sized full width through squeeze rolls, rather than in the washer.

If you are unable to locate a good staple shin wool for the blend, a good coarse China wool and 5% of cattle hair might be worked into the blend. Some very coarse cape could also be used.

Recently formic acid has come into some use for fulling and is believed by some finishers to have certain advantages over sulfuric acid in that it gives greater swelling of the wool fiber and at the same time affords less difficulty in washing out of the fabric after fulling has been accomplished.



Type of yarn used in knitted fabric for shoes and slippers

Silk Ribbon Changes Shade on Storage

Technical Editor:

I am enclosing a sample of silk ribbon which was bound on a white blanket. After two or three months in storage it was found to turn from a green to a grayish color. Just what caused this? The blanket was bleached before the binding was put on, but was neutralized by running in cold water. (7472)

This is a difficulty which is often encountered by blanket manufacturers who do their bleaching with sulfur dioxide, rather than with peroxide. It is almost impossible to wash out the last residue of sulfur compounds; and when the goods are stored, the natural moisture of the wool, together with the heat, generally causes trouble of some kind. A prominent maker of blankets, who does not make the ribbons, always specifies to the ribbon manufacturer that the colors used in dyeing the ribbon must be fast to sulfur bleach. A peroxide bleach is better in every way for all-white blankets; but at present it is difficult to find colors, except the vat dyes, which will stand the peroxide bleach without fading or bleeding into the white. The wool could be bleached with peroxide before spinning, using peroxide, and if not too badly stained by the use of mineral oils, would scour to a better white than the present sulfur white.

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Finishing Knitted Chinchilla

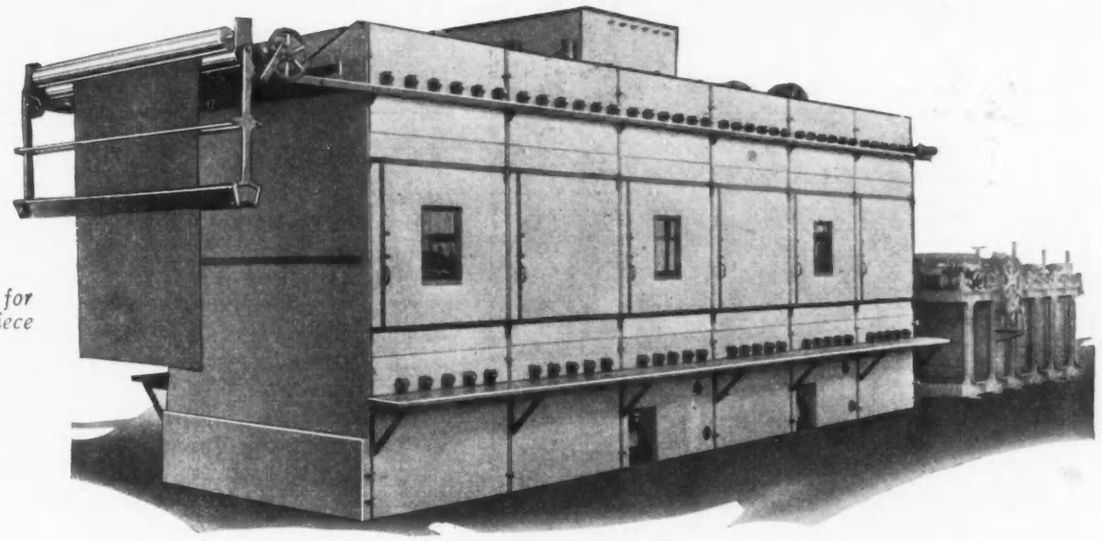
Technical Editor:

We are familiar with the manufacture of knitted chinchilla cloths, and have been making them for some time, but the enclosed sample has a peculiar harsh-feeling finish which we desire to obtain. We shall appreciate your opinion as to whether or not these goods have been treated in some chemical bath after dyeing to produce this result.

The backing yarns in this fabric contain about 60% wool; and of course, the grade of wool used would be a factor in the result obtained as to feel and finish. The goods are rubbed on a Kenyon chinchilla machine after napping, and we know that in some cases they are run through the machine two or three times.

If you are at all familiar with the process which would enable us to obtain this particular feel and finish, which does not rub off or mat down with wear, it would be appreciated. (7479)

This character of finish on the knitted chinchilla cloth is, as you suggest, due to the chemical treatment being used previous to drying. We are enclosing the name of a chemical supply house which is furnishing to a number of finishing plants doing this type of work, a sizing material which can be applied either in the dye kettle after dyeing is done or in the padding machine, after the goods have been extracted. The proper amount to be used can be determined by experimenting with a series of sample lengths.



Improved unit for carbonizing piece goods

New Machinery & Processes

Cloth-Carbonizing Unit

DEVELOPMENT of an improved cloth carbonizing unit consisting of acid-saturating tank, vacuum extractor, dryer, and carbonizer is announced by James Hunter Machine Co., North Adams, Mass. It is stated that refinements in design and construction embodied in this unit enable continuous, uniform operation at high speed and low operating cost.

The acid tank is of a unique type of construction, having a separate cast-iron framework set away from the main tank, which is built of 4-in. cypress. This separate framework carries all the top tank rolls, squeeze rolls and vacuum-extracting equipment. By means of this arrangement one can easily and quickly slide out the tank itself for repairs and replacements without disturbing top-roll, squeeze-roll, and extracting-equipment assembly. Since the top rolls are driven, drag on the cloth is minimized. Another feature is that the bottom idler rolls run in rubber bearings which are held by internal bracing, thus eliminating leakage risk. Cloth passing through the tank is fed through four sets of squeeze rolls, which are equipped with adjustable weighting arrangements to allow any desirable pressure and to impregnate the cloth thoroughly with the acid or aluminum chloride.

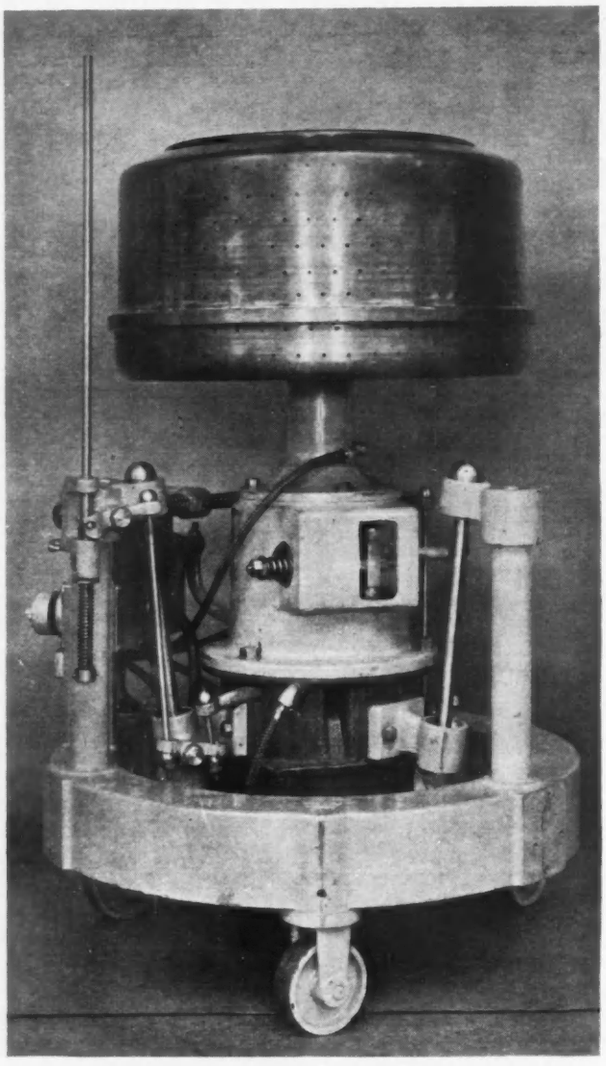
The vacuum extractor removes excessive acid from the cloth uniformly throughout the length and width of the piece, and thereby eliminates heavy and irregular acid concentrations, acid burns, and streaks. Other advantages of vacuum extracting in any continuous carbonizing process include a low steam consumption in the subsequent drying process, and the possibility in many cases of saving a large amount of the acid or aluminum chloride that otherwise might be wasted.

The drying and carbonizing sections of the unit have two separate functions: to dry the cloth, and to carbonize the burr and shive fragments. In the drying chamber there are located circulating fans which give uniform air flow across the width of the cloth. Fresh make-up air enters from the outside through a tempering coil in the last drying section and flows through the dryer in a reverse direction to the travel of the cloth. An exhaust fan removes the nearly saturated air.

Other distinctive features of the carbonizing dryer are that all circulated air is passed through filter screens which remove flock and lint and prevent clogging of the mechanism; all fans and heaters are located beneath the cloth, leaving the sides of the machine unobstructed and reducing the floor space required; heaters are all of seamless tubing construction; and there are no pipe-fittings within the enclosure of the dryer. The dryer housing consists of removable panels built up of sheet metal filled with 2-in. rock-wool insulation. The side panels are provided with hinged doors 5 ft. high and extending the full width of the section on both sides of the dryer, giving immediate accessibility to all sections of the unit. The doors are equipped with 12x24-in. plate-glass observation windows.

All rolls are impregnated with a special acid-resisting preparation. Roll shafts are mounted on self-aligning bearings, located outside of the machine. Positive control of speed is possible because the joint speeds of dryer and acid tank are controlled by two variable speeds, one to control and synchronize both the dryer and acid-tank speed, and the other to control only the speed of the acid tank. This gives not only positive control of speeds, but a wide variation and flexibility of speeds.

In the baking or carbonizing section of the dryer an air-circulating system is employed to maintain a uniform temperature. In addition, the coils are located at the bottom of the section at a safe distance from the cloth, in order to prevent burning of the cloth and to provide greater accessibility. The entire inside of the dryer and carbonizer is heavily coated with an acid-resisting



Centrifugal extractor with shell removed to show mechanical brake and safety-lock mechanism

preparation to offset the highly corrosive action of the carbonizing process. If desired, the entire side paneling of the machine can be furnished with monel-metal sheets.

Portable Extractor

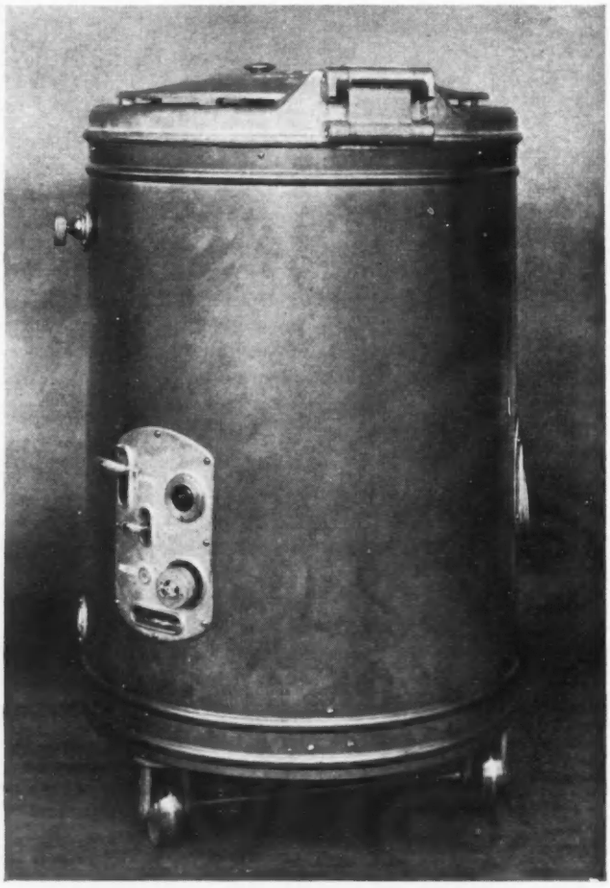
A HIGH-SPEED, portable centrifugal extractor of compact design has been placed on the market recently by Textile Machine Works, Reading, Pa. The manufacturers state that while the extractor is of small size, it can be loaded, operated, and emptied with such rapidity that it is actually a high-production machine with a wide range of uses. A unique method of mounting reduces vibration to a minimum and prevents the machine from creeping.

The extractor consists of a substantial cast-iron base mounted on three rollers, monel-metal shell, 18-in. basket, centrifugal clutch, built-in mechanical brake, and driving motor. The position of two of the supporting rollers is fixed; while the other one is on a swivel, making it possible to move the unit from place to place easily. This arrangement also prevents the machine from spinning should the basket be subjected to undue vibration. Three vertical posts support the working unit through the use of free-swinging suspension rods. Initial vibrations are prevented by the use of large rubber cushioning washers, which are provided on the suspension rods.

The extractor basket is of a new design, being a combination of a cast-bronze center column and base, to which is attached a spun-copper side and top. These parts are joined together by both soldering and riveting in such a way that it is impossible for them to become separated. The holes in the side of the basket are drilled and countersunk and the inside finish is smooth. By tinning the inside of the basket it can be made acid resistant.

A compactly arranged control panel, located on the monel-metal shell, contains a push-plug receptacle having contact for power cord, current switch with tell-tale light, "Start" and "Stop" levers, together with the lubrication connections. Through the use of a centrifugal clutch, designed especially for this extractor, the motor shaft is gradually connected to the basket-driving spindle, thus insuring long life to the motor and the other driving parts. This clutch is so designed that it is a part of a safety device which makes it impossible to start the basket with the cover of the extractor open or to open the cover while the basket is in motion.

The cover is of cast aluminum and has been designed to incorporate a safety mechanism which prevents the clutch from engaging until the cover has been closed and locks the cover in the closed position when the extractor is in operation. Should the basket of this extractor, for any reason, start to oscillate beyond a safe limit, an automatic device is tripped which cuts off the current to the motor and in addition applies the safety brake. This same safety brake is used for stopping the basket of the machine when the stop lever is operated.



High-speed portable extractor of compact design

A tapped drain is provided in the monel-metal shell for the removal of the extracted liquid. This waste may be piped to any convenient point of disposal. Lubrication of drive shaft and motor bearings is effected by means of Alemite fittings on the control panel, from which lubricant is conducted to these bearings through flexible copper tubes.

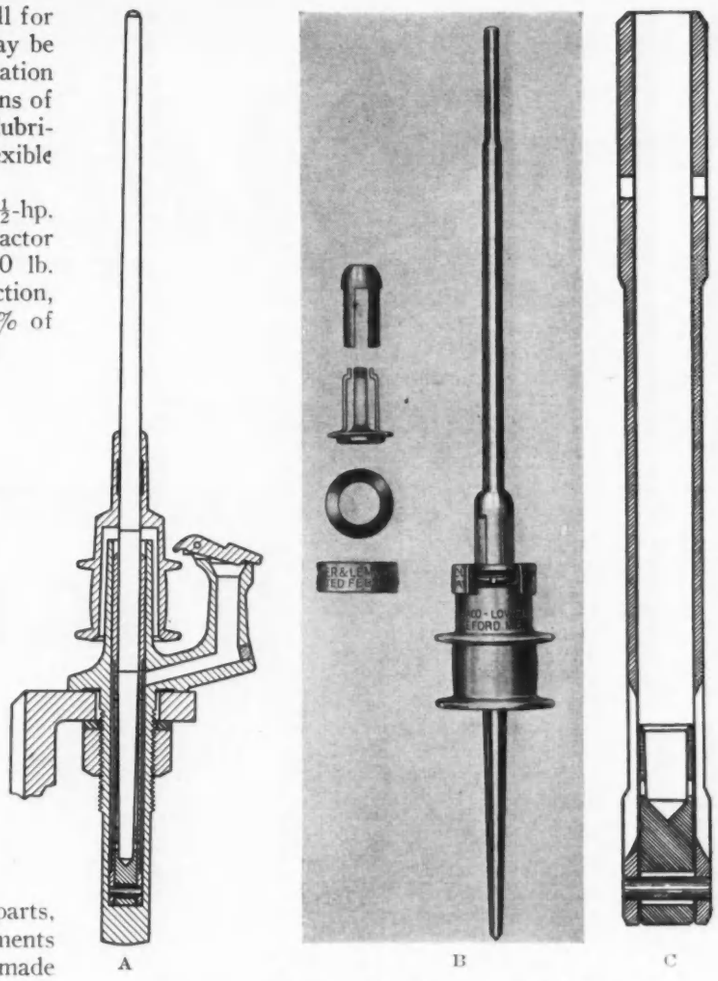
Power for driving is furnished by a vertical, ½-hp. motor operating at a speed of 1,800 r.p.m. The extractor is built to carry a wet load of approximately 40 lb. From 4 to 6 min. is required for loading, extraction, and unloading. It is stated that approximately 90% of the liquid is extracted after 1 min. of running time.

Improved McMullan Spindle

SEVERAL interesting improvements in the McMullan spindle have been announced by Saco-Lowell Shops, 147 Milk St., Boston. Among these refinements is the use of special steels which permit strengthening of the spindles at certain points and production of a lighter spindle without sacrifice of strength or running qualities. In addition, the shape of the bolster has been changed in order to allow an adequate supply of oil to circulate through the oil grooves as the spindle rotates. Lubrication has been improved further by providing greater reservoir capacity and eliminating oil pumping and frothing.

The spindle-clutch assembly consists of four parts, all of substantial and rugged design. The segments which hold the bobbin are of large surface and are made from special milled screw stock, which, to prevent wear, are hardened. Over the segments is a substantial cap which fits closely so as to exclude all dirt or thread which would interfere with the working of the parts. The segments rest on a spring-steel washer. This washer is made from a high grade of spring steel in order that it may last the life of the spindle. The whole assembly is held on the spindle by a turned steel cover fitting down on the whirl. The cap and the cover hold the segments securely in place, and the segments are the only moving parts.

There are no sliding movements to wear the segments, no soldered or brazed joints to give trouble, and no springs to become broken. It is stated that the bearing surface of the segments are so large that the bobbin is securely held at all speeds, and there is no rising of the bobbin on the spindles. The spindle clutch is of special interest to those mills spinning filling for automatic looms, which must have a bunch of yarn accurately placed on the quill. The improved spindle clutch can be furnished on any Saco-Lowell spindles.

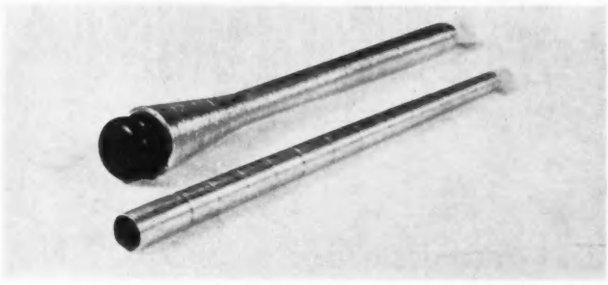


A, cross-section of McMullan spindle; B, improved clutch spindle; C, McMullan bolster with loose step and large oil passages

Duralumin Quills and Cops with Fiber Bases

FOR use with electrical feeler stop motions, new Duralumin quills and cops have been placed on the market by the Dehler-Signoret Corp., 215 Fourth Ave., New York. The alloy contains a high percentage of magnesium to prevent discoloration of the silk and to increase the rigidity of the metal. The hardness of the alloy is said to prevent burring, which is of course detrimental to fine silks and is caused by the quills or cops striking against objects when thrown around by the operatives. Besides being more resistant, the alloy is said to be lighter than pure aluminum.

Fiber bases are inserted in the quills or cops, and reach about half way up the inside. These prevent freezing on the winding spindles, and also eliminate danger of the bore being reamed out by burrs on the shuttle spindles. The quills and cops can be supplied without the fiber bases if desired ,but they are recommended by the manufacturer. In the accompanying illustration a fiber base is shown only on the quill.



Quill and cop for use with electrical feeler stop motions

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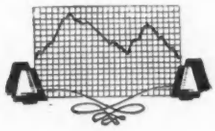
◆ *Survey of Fabric, Knit Goods, Yarn and Raw Material Markets* ◆

TEXTILE WORLD ANALYST



Should Guard Against Secondary Reaction to Current Rebound

By Dr. L. H. Haney

BUSINESS has made some recovery during the last month, at least in the sense of increase in industrial activity. Some of the more obvious indications are as follows: a more than seasonal increase in production of pig iron and steel during January and February; a rising trend in cotton mill consumption in January and February; an increase in wool mill consumption in January; a rise in construction contracts awarded in February that was somewhat greater than usual; an increase in automobile production in February that was greater than usual.

Thus we have considerable evidence of an increase in production, and one which perhaps justifies the conclusion that the business cycle as measured by the output of basic manufactures may have hit bottom in January. Moreover, factory employment made the usual seasonal gain in February, so that we can say that the decline in employment has been checked; and payrolls increased more than usual in the same month indicating a higher percentage of full-time work. This is distinctly encouraging.

Finally, it has been apparent during the last two or three weeks that commodity prices have become nearly stabilized, since the number of important commodities which have made advances has gained on those declining.

Two Questions

The questions now are: (1) Have liquidation and readjustment in business been sufficiently complete to furnish a basis for a sustained recovery? (2) Is the recent upturn in production the beginning of a sustained recovery, or is it one of those preliminary rebounds which so frequently occur toward the end of a major recession in business? Both of these closely related questions deserve careful and unbiased consideration. Let us eliminate hopes and fears, or sentiments of optimism and pessimism, and consider the situation in a purely scientific spirit.

The conditions which brought on the financial and business collapse in 1929 were chiefly: (1) over-expansion of credit (particularly loans on securities), (2) overproduction and a huge accumulation of commodity stocks, (3) overvaluation and over-issue of common stocks, and (4) maladjustments among commodity prices, including wage rates. To what extent have these conditions been corrected?

That progress has been made in liquidating bank credit is clear. Since December, 1929, nearly 1,500 banks have failed. The total loans of the banks have been reduced, deposits have held up (and savings increased), and the net reserves of the Federal Reserve Member Banks have gained largely. But, while "brokers' loans" have been thoroughly liquidated, collateral loans to others have remained abnormally large, the total security loans being still close to 50% of total bank loans. Moreover, the ratio of loans and investments to total deposits is still above normal. We may conclude that bank credit is in a much stronger position than in 1929, but that it is not yet sufficiently liquid.

Overproduction has been generally corrected insofar as current operating rates are concerned. But the fruits of past overproduction remain in the shape of huge stocks of many commodities, both raw and manufactured. Moreover, in many industries, plant capacity remains far in excess of any visible requirements.

In the security markets we still find dozens of "leading stocks" which sell at prices which are in the neighborhood of 20 times visible earnings and yield less than 4%, and a belated wave of inflation based on the accumulation of easy money in New York is encouraging professional pool operations. While many stocks have been thoroughly deflated, the "blue chips" and investment trust favorites are in many cases abnormally high.

It is in the price and wage-rate structure, however, that we find the most serious difficulty. The prices of many manufactured products (for example, steel bars) are far out of line with raw materials. Farm prices are 10% below pre-war, while building materials are 48% above pre-war. Most retail prices are still too high in comparison with wholesale prices, or with consumer purchasing power. Money wage rates, as an average, are at a level which can be maintained at present only at the expense of unemployment.

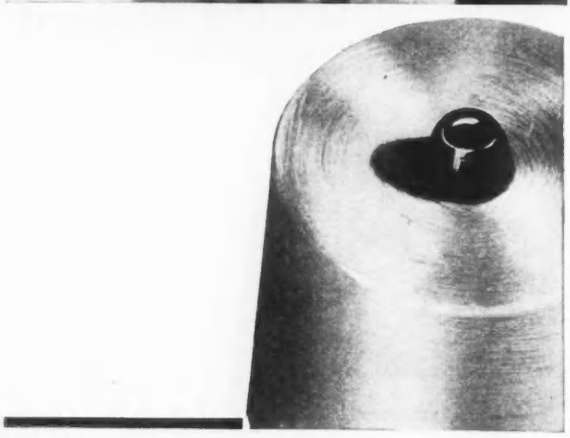
In each case, considerable progress has been made. In no case, however, does the necessary readjustment appear to have been completed. Accordingly, one may well doubt that the final sustained recovery in business has been prepared for, or can be expected at this time.

This brings us to the second question, which concerns the nature of recent upturns in such cases as iron and steel

Summary: **The irregular improvement in some lines of business during recent weeks warrants hope that bottom levels have been touched, but caution should not be abandoned; for it seems probable that this is only a "pre-final" rebound in business, which is likely to react again and not make sustained recovery till various maladjustments are more thoroughly corrected.**

The analysis and forecast by Dr. Lewis H. Haney, Director, New York University, Business Research Bureau, which regularly appears on this page, considers various branches of the textile industry from week to week. The conclusions reached in the Analyst are mostly forecasts and generally apply to a time two or three months ahead. The Analyst is based on statistical data and does not reflect temporary trade sentiment.

Hosiery buyers want the *permanent* dull-lustre of CHARDONIZE YARN



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production and cotton manufacturing. If this upturn is not the beginning of the final sustained recovery in the business cycle, what is it? Here precedent affords an answer.

A "Secondary" Reaction Probable

A glance at the record of iron and steel production, or of industrial activity in general, will show that a preliminary or premonitory rebound has usually occurred at the end of major cyclical recessions in business. This is equally true of the stock market. We found such pre-final rebounds in 1885, 1893-94, 1914, and to a less extent in 1908 and 1921. It seems that after a long recession the time comes when industrial activity has fallen so fast and so far below normal, and when pessimism has become so deep, that business gets underbought and the stock market oversold. A rebound both in sentiment and in production then occurs and is aided by a more or less temporary rush of postponed buying, by much short covering, and by an abundance of easy money that exists at such times on account of business depression.

Then there usually follows a realization that this preliminary recovery can not be sustained, and a "secondary" reaction sets in. Such reactions vary considerably in duration and extent. Whether they carry business activity below the preliminary bottom (such as was made in January) or not, seems to depend upon (1) the extent of the correction of past maladjustments which had been effected during the recession and upon (2) the extent to which the secondary rebound goes.

Probably we are now in the midst of such a rebound, and within a month or two will be nearing its peak. It is to be hoped that sufficient caution and conservatism will prevail to prevent the development of over-optimism and new credit excesses so that any secondary decline may in this case be moderate and thus disturb as little as possible the fundamental processes of liquidation and readjustment which must be completed before we are ready for a sustained recovery.

The textile industries should be well aware of the danger of attempting too early an expansion in production. The silk industry is even now undergoing such a secondary reaction as has been described, following too hasty an increase in production last fall. The cotton manufacturers are now threatened with a similar letdown. The best policy is to make haste slowly and to await a thorough consolidation of position through an adjustment of supply and demand and an accumulation of a reserve of orders before attempting to make the final sustained recovery in the business cycle to which we all look forward.

Cotton Mill Earnings Improve

The increase in activity in the cotton industry has been at the expense of manufacturers' "replacement margins," which are all close to the post-war low. Cotton yarn prices were stronger than raw cotton in February, and spinners' replacement margins showed a slight gain. Cloth prices, however, did not advance as did raw cotton, and the replacement margins of cloth manufacturers declined again. More recently, yarn markets have turned weaker.

Actual earnings margins, however, allow for the usual lag between the purchase of raw cotton and the sale of the finished cloth. Therefore, if it be assumed that March goods are produced from cotton bought in late 1930, the average manufacturer will find his earnings margin a little better than in February. This is true because the decline in cloth prices was offset by lower raw material costs. Beginning about April, however, the earnings margin will *tend* to decline, because of the rise in raw cotton in early 1931. Only a rise in cloth prices can prevent such decline.

Actual earnings probably declined in February, but this was largely seasonal and some improvement is likely in March.

Mill stock prices have risen steadily since December. The earnings margin, though below January, is at a level which is usually accompanied by firm to rising stock prices. The prospects are that this margin will remain at a favorable level for at least another month or two.

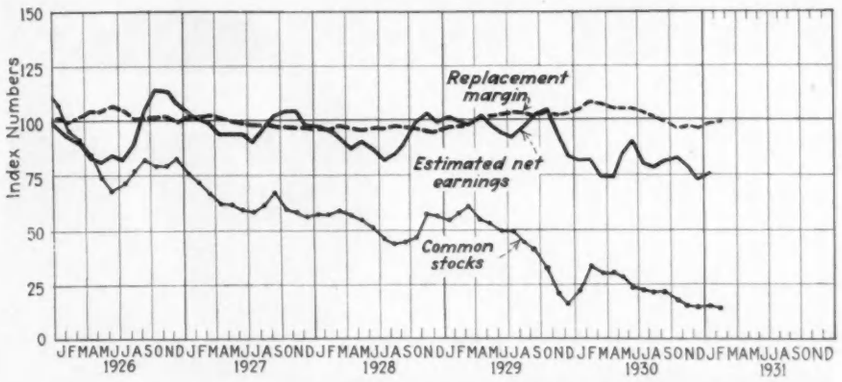

Fig. 1. WOOL MANUFACTURING EARNINGS AND WOOL MILL COMMON STOCKS—Net earnings in Wool and Cloth Industry—Computed from the estimated cost of raw material, labor, fuel, etc., the price of finished goods, and the volume of production (New York University, Bureau of Business Research). Replacement Margin—Computed from the cost of raw material and finished goods (New York University). Common Stocks—Average of a representative group of common stocks. Average 1923-1928 = 100 for all indexes.

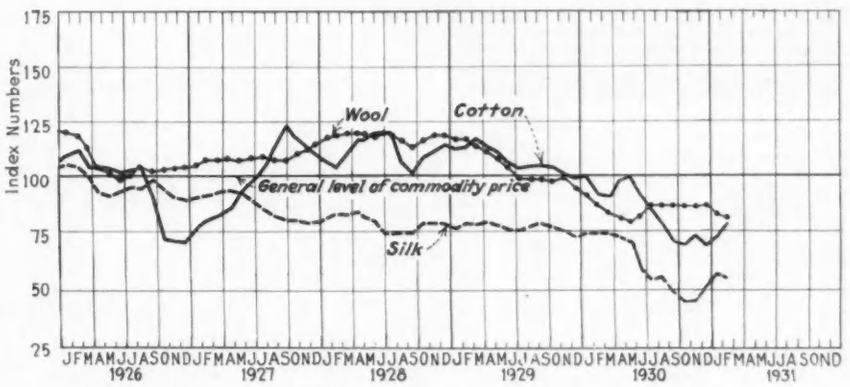

FIG. 2. TEXTILE PRICE LEVELS—Chart shows how chief textile fibers compare (1) with the general level of commodity prices and (2) with each other. The 100 line = average of all commodity prices and fibers are normally priced when near the general level. The several fiber price curves are so placed that normally they should be close together.

Wool-Mill Stock Prices Show Stability

The replacement margins of wool manufacturers improved in January and February. Activity increased in those months and with better margins, reflects better demand conditions. The actual earnings margin (which allows for the lag in manufacturing) also improved in February, and together with increased output, resulted in higher estimated net earnings.

The average price of wool-mill stocks has moved in a narrow range for the last six months. The slight increase in estimated earnings has probably been insufficient to outweigh the factor of declining raw material and cloth prices in domestic markets. The recent strength in foreign markets gives some hope for stability in raw wool before long, however, and when this occurs security prices may be expected to respond to the more favorable outlook.

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YARNS AND RAW MATERIALS

TEXTILE WORLD ANALYST

◆Yarns Are Stronger Than Raw Cotton

YARNS are stronger than cotton. Although the raw material market has reacted from the peak of recent weeks, yarn prices are nominally unchanged. Most spinners have a fair volume of business, especially in weaving counts, for shipments during the next month and although cotton is quoted at less they have held prices steady. Should spinners be able to adhere to this policy and if cotton should react further, it will give them, for the first time in several months, an opportunity to widen margins which are nonexistent in most carded counts at the present time.

Spinners More Confident

The more confident attitude on the part of spinners is shown by reports from TEXTILE WORLD's southern office which state that spinners are making determined efforts to avoid the accumulation of excessive yarn stocks and one fairly large spinner of carded yarn is contemplating an indefinite shutdown until the return of margins sufficient to justify continuous operation again.

Confusion has been seen in combed yarn quotations during the last two weeks, but reports indicate that leading combed spinners have continued to refuse to accept less than 53c. basis 60s-2. According to dealers there has been a fair amount of combed business placed from 40 to 53c. depending upon the quality and deliveries.

Combed Yarns Soft

In Philadelphia the market level on 60s-2 combed average quality has been 50 to 52c. which is 2c. lower than the figure quoted two weeks ago. Coarser counts of combed peeler have held more steadily than numbers finer than 40s-2, largest reductions being made in 50s-2 to 70s-2.

Unevenness is also seen in quotations of single combed. Greater firmness is reported in numbers around 38s, which is the most active count of the entire list, and prices are stronger than the less active numbers, such as 18s. Demand from lightweight underwear manufacturers in responsible for this condition. A number of combed spinners have no business in coarse single numbers, but are unable to make deliveries on 38s.

Spread In Mercerized

There is a fair volume of business in mercerized yarns but largest contracts have been placed at concessions.

Knitters report that they have been able to contract for 60s-2 mercerized at 68c., although nominally the price of this count is 72c. For smaller orders mercerizers assert they are receiving more than 68c. Deliveries 4 to 5 months ahead have been noted in recent contracts.

◆Cotton Works to Lower Basis

COTTON has sold off during the week under liquidation of old long accounts which would appear to have been inspired by doubt of an adequate reduction in acreage and uncertainty as to the future policies of the Federal Farm Board. The latter was a logical consequence of the official announcement that there would be no stabilizing operations undertaken in the 1931 wheat crop. The feeling among local brokers was that stabilization could not be abandoned in one of the major commodities and not in another, and that the chances were the 1931 cotton crop would have to be sold on its merits. There has been no announcement by the Farm Board regarding its probable policies in cotton.

So far the stabilization operations by the Cotton Stabilization Corporation have been confined to the holding of 1,300,000 bales of the 1929 crop, and the uncertainty is with reference to the marketing of this cotton, as to whether the stabilization corporation will take over any of the 1930 crop, and just what the Farm Board may do should the 1931 crop add to the surplus which will be in existence at the end of this season. Any definite statement by the Federal Farm Board with reference to its future policies can hardly be expected until some line is had upon the coming acreage. The Farm Board is already pledged to hold the 1929 cotton until after the first of July, and some think it possible that the Stabilization Corporation may take over some of the cotton now held by the cooperatives before the end of the season.

In any case, it seems quite generally believed that with the emergencies of 1929 and 1930 passed, stabilization in all the major commodities will be abandoned temporarily at least, and that the Farm Board's activities will concentrate upon efforts to regulate production and the financing of cooperative marketing. Whether this will involve a lower level of prices, no doubt, depends upon the outturn of the coming crop and the development of trade conditions. The impression persists that trade is gradually improving, while the size of the coming crop depends upon yield per acre as well as upon acreage. There has been little or no change of sentiment as to the latter with forecasts of the decrease ranging from about 8 to 15%. Meanwhile, recent rains have delayed crop preparations to some extent but have improved soil conditions. Southern advices still indicate a decided reduction in the use of fertilizers.

The final figures of the Census Bureau on ginnings from the crop of 1930 were somewhat below the Government's December estimate. They place the crop in equivalent 500-lb. bales at 13,929,941 making 13,753,883 running bales. There has therefore been a downward revision of figures on the probable end-season carryover. The season's supply with allowances for the city crop, etc., is figured at about 13,914,000 running bales which with the carry-over on Aug. 1 would mean that the total season's supply was around 20,071,000 bales. World's consumption of American lint cotton for the first half of the season amounted to 5,278,000, and should it increase sufficiently to equal last season's figures for the second half, 5,940,000 bales, it would mean a season's consumption of 11,218,000 bales and suggest an end-season carry-over of about 8,800,000 bales.

A feature of the trading during the week has been persistency of trade buying on scale down orders. These orders have been in comparatively small lots but they have come from all sources, apparently, and have aggregated a substantial total.

Fair Demand at Memphis

MEMPHIS, TENN., Mar. 23.—The character of demand for cotton in this market changed little during the week

Market Briefs

Cotton: *Cotton works gradually to lower basis.*

Cotton Yarns: *Continued quiet; prices unchanged.*

Cotton Goods: *Good spot call; futures quiet.*

Wool: *Sales moderate; fine wools stronger than others; carpet wools advance.*

Worsted Yarns: *Swimsuit and sweater yarns active.*

Wool Goods: *Attention centers on fall openings.*

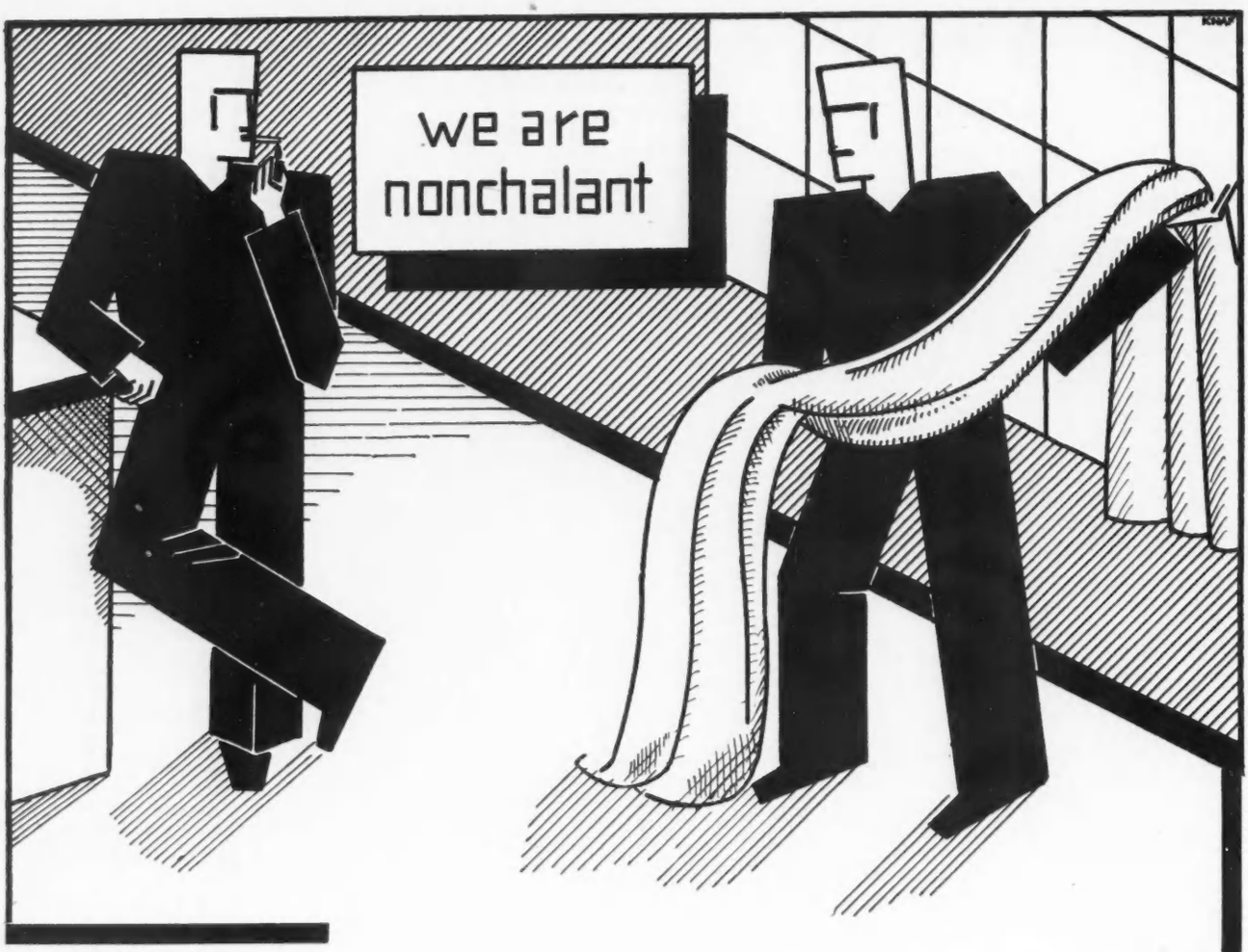
Silk: *Prices drop 20 to 25c. Demand sluggish.*

Silk Yarns: *Thrown and spun quiet; thrown prices 20c. down; spinners hold firm.*

Silk Goods: *Low-price prints very weak; much underselling. Quality lines steady.*

Rayon: *Good volume may offset low prices, spirited demand.*

Knit Goods: *Full-fashioned hosiery strong; lightweight underwear in good call; swimsuits easier.*



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YARNS AND RAW MATERIALS

TEXTILE WORLD ANALYST

but scarcity of the more wanted descriptions restricted sales. Demand continues good for bright low and medium grades up to and including 1 3/32 in. and for high grade staples longer than 1⅛ in., but is at least fair for about every length and description offered. Buyers are not fussy as to grade, but are unusually careful as to staple because of so much mixed staple from the drouth crop.

The unsold stock is moderate in size and has been combed over frequently; a considerable number of orders have been turned down recently and merchants were unwilling to offer at any price because they did not know where the cotton could be found. This seems to give some color to the claim made in some quarters that wanted cottons may be hard to buy before the new crop begins to move.

Basis remains quite steady with buyers resisting a disposition on the part of sellers to ask more. Most of the demand for the low and medium grades is coming from southern mills; there seems to be some buying of low and medium grade staples for export, principally for Liverpool. Sales during the week totaled 10,953 bales against 10,111 last year and 20,472 the year before, making 614,676 for the season against 943,596 last year and 800,859 the year before. Total ginnings from the Mississippi delta crop were 562,000 bales against 913,000 bales from the crop of 1929 growth.

◆Strips Most Active Cotton Waste

AN ACTIVE demand for white card strips from southern manufacturers of coarse count cotton cloth featured the cotton waste market in the early part of the week. Most of the buying was for prompt shipment, which tends to confirm the impression held by dealers quite generally that there are no large stocks of these materials in consumers' hands. The price paid for No. 1 upland strip ranged from 7½ to 8c., while peeler strips brought as high as 8½c. for choice lots.

Peeler comber continues relatively quiet. Export demand slowed down somewhat this week, but dealers look for better business from the Manchester (England) market, basing their opinion on reports of the improved outlook in British cotton mills. Picker and fly continue to move in a small way at unchanged prices. There is no change in the thread situation; this branch of trade has been cut into largely in recent months by increased use of wipers, both old rags and specially manufactured fabrics.

◆Worsted Knitting Yarns More Active

DEMAND for bathing-suit yarns, single and two-ply, is the feature of the sales yarn market. These manufacturers in many instances are operating overtime and their consumption of yarns is the largest that has been noted this year. This trade has been slow in stepping-up production and were light yarn buyers in January and February. Rush deliveries of the garments are now specified, and, to meet this situation, spinners are asked to make the largest deliveries in the shortest time possible. The bulk of the business is for delivery within the next few weeks.

Short Swim Suit Season

Manufacturers have delayed placing yarn business until they had actual goods orders on the books and this has resulted in the season, which should have started early this year, being crowded into a much shorter time. Good demand from this trade is anticipated by spinners until the middle or the latter part of June.

Yarns used in the manufacture of spring sweaters are in active request for immediate shipment. Manufacturers are busy on these lines but the business is strictly hand-to-mouth.

In knitting counts, sales of English spun have made larger strides within the last few weeks than French spun, the latter having previously had the call from knitters. Bathing-suit sales have brought activity of English system mills up more nearly to a level with that of French.

Lack of demand for knitted dress fabrics is causing a slowness in sales of two-ply zephyr yarns and when fair sales of 2-40s, 64s, are reported these are usually at slight concessions, $1.37½ being noted.

Weaving counts are not active. Men's wear manufacturers have placed business in most instances that will cover their requirements for the first half of the new season and are content to await further developments. Nothing of importance has occurred in dress goods counts. It is between seasons for these mills.

◆Carpet Wool Turn Surprises Mill Buyers

CARPET wools are advancing in price for the first time in 15 months. Domestic dealers find that it is impossible for them to replace stocks in primary markets at prices that will permit them to sell at the American price level. Reports indicate that the largest domestic manufacturers, having their own spinning plants, bought heavily in carpet wools just before the advance. These plants have a price advantage of several cents already over competitors who did not cover. Reports are to the effect that carpet yarn spinners, not having orders from manufacturers, refused to cover in wools. Thus carpet mills which buy their yarns may be at a disadvantage later on in competing for business with those who spin.

◆Worsted Wool Call On Moderate Scale

MILL buying of wool on a moderate scale continues on Summer Street with prices on fine wools showing a slightly rising tendency, brought about by the sharp advance in London. Sellers, nevertheless, find it difficult to lift prices out of the rut, and the advancing tendency in fine wools is offset by the declining tendency in medium wools. A larger mill interest has developed recently in quarter-blood fleece wools. More wool has been moving on a lower price level. Considerable business is said to be pending providing sellers are willing to make further concessions.

New Arizona wools are selling quite readily at 58 to 60c., clean basis, for bulk French combing wools in the original bags. Territory 64s and finer wools in the original bags sell at 57 to 62c. clean basis. Half-blood wools have been in demand, manufacturers trying to buy choice Montana wools at 60c. or under, clean basis. No real change has developed in the domestic wool situation, but from all accounts the independent wool merchants, having sold with greater relative freedom than the cooperatives, are in a favorable position to operate to advantage in the acquisition of the new wool clip. The trade will, nevertheless, act conservatively. The size of mill holdings is all a matter of guess now that the Government quarterly report has been suspended.

Low prices seen on wools outside the United States in January are not likely to occur again for years, it is believed. The rising tide of prices in London and Australasia are more likely to restrict importing than to bring about any immediate advance in domestic values.

Independent wool merchants seem surer of their ground than a year ago. The big experiment of the National Wool Marketing Corp. continues an experiment, with as much ground lost as gained. Money is more plentiful this year and at a lower interest rate.

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YARNS AND RAW MATERIALS

TEXTILE WORLD ANALYST

Wool Marketing Corp. to Texas mohair growers, 15c. on adult and 25c. on kid hair, have caused considerable indignation and as one result independents and mills have been quite active in securing large quantities of fully grown and kid hair. The Corporative organization has large stocks of the 1930 clip in its possession and could have secured a "corner" on mohair if this had been its policy. Mills have been buying adult hair around 23c. and kid at 33c. Texas wool growers affiliated with the marketing organization have developed nervousness, but have been reassured to some degree by an executive of the organization, stating that the Board had faith in wool and would give it greater support than mohair.

◆Rags, Noils, Wastes Stable but Slow

EVERY passing week makes it more likely that woolen mills will come into the market for additional supplies of rags and reworks. The general situation is so inactive that any further recession in volume of business seems quite improbable. The market has managed to ward off any further decline in values and stocks of desirable graded rags are so small that any real interest on the part of manufacturers would bring about an era of advancing values.

Grading operations are on a very low plane. It does not pay to grade rags at this time. Some houses are able to pick up odd lots of graded rags from other dealers and thus meet their shipping orders with little difficulty. The question of price seems of limited importance. Attractive prices offered by holders of imported knit stocks brought in under the old tariff fail to produce business.

The wool waste market continues quiet, but prospects are good for larger business. The slow situation will probably continue until the heavyweight opening turns manufacturing in a new direction. Waste prices on Summer Street are unchanged. Increased buying of woolen wools is an interesting feature. Such buying rarely gains in momentum without affecting the waste demand favorably.

The noil market is in good condition to handle any and all business that appears. There are no weak spots anywhere. The general position is controlled by strong interests on Summer Street. As compared with a month ago the turnover is slightly larger, while prices are without real change on good material. Defective noils can at all times be bought at prices well below standard materials.

◆Spun, Thrown Silk Markets Quiet

A SORT of mid-spring lull has developed in the broadsilk hosiery industries, according to silk throwsters, and the demand for yarn has shrunk to almost negligible proportions. A few thrown silk mills are writing small orders, but the bulk of the trade finds it difficult to move any stock, no matter what concessions are offered. It goes without saying that prices are weak; however, there does not appear to be much haggling. Throwsters are not desperately pressed to clear, as their stocks are light, thanks to a cautious production policy. Prices dropped 15 to 20c. on all thrown yarns this week, and the trade is very doubtful as to prospects.

Spun silk also is in a lull period, but prices hold firm, and the market tone is confident. Reports regarding the movement of broadsilks of spun yarn content are satisfactory; it is still early for shantung fabrics, but the manufacturers have had good response to date, and they are expected to resume buying yarn very soon. Spinners look for 40 to 50 days more of spring business, and they expect fall interest to begin to manifest itself about May 15.

◆Slack Demand Weakens Raw Silk

SLACKENING of demand from American manufacturers, and a hesitant market in Yokohama, brought a further weakening of raw silk prices this week. Quotations in New York were pruned down about 20c., with a few numbers selling 25c. below last week. Broadsilk weavers showed little interest; their own business is none too good at the moment, and they have put the brakes on production, pending improvement. Advices from Japan indicate that there is considerable silk available in the interior, and some has found its way to Yokohama. The Government mandate aiming at curtailment has been obeyed by all but a few.

New York importers are hopeful that the lull in domestic buying will prove temporary. American manufacturers have little silk on hand and few are covered ahead. The situation between now and June depends largely upon the American consuming group; indeed, buying sentiment here may fix Japanese prices for export.

The prospects for a steady market here are not promising. The situation among consuming industries is too uncertain to encourage steady buying, even for nearby delivery. Then, too, it is likely that the pressure of the new crop may reduce levels. Silk stocks in the hands of New York importers are moderate; these factors have fared fairly well, thanks to a policy of extreme caution. At present, a few of the 20/22 numbers are scarce, but the shortage is not acute enough to inflate prices.

Disposal of the silk warehoused in Japan continues a moot issue. The Government recently announced a public sale of 3,000 bales, but this sale has been postponed for two reasons: first, the Japanese expect the market to strengthen, permitting higher prices for the surplus, and second, they are afraid that release of the 3,000 bales might upset an already none too firm market. Offhand, it would seem that the postponement was most wise. With prices as they are, the release of even this modest stock might delay stabilization for a long period.

◆Rayon Profit Outlook Improves

EARLY estimates of first quarter dollar volume suggest that rayon turnover may have been more profitable than expected. The sharp increase in sales that followed the January price cut was first regarded as insufficient to make up for the lower profit margin. Numerous firms, it is true, have felt the pinch, and are exercising rigid economies to offset the reduction; on the other hand, however, several producers estimate that their dollar volume for January, February and March will equal, if it does not exceed that of the same period last year.

It seems likely, from present indications, that a good percentage of the industry will report a profitable quarter, despite the price cut. Prices now hold steady and market tone is encouraging. There is a spirited call for all yarns, from the coarsest to the finest, most particularly the 100s, 125s and 150s, the demand coming from both weavers and knitters. Hosiery mills show increasing interest and are buying all three sizes above specified, but particularly the 125s. The movement has cut well into the stock surplus, and a possible 10,000,000 lb. has been sliced off the estimated 25,000,000 surplus with which the industry ushered in the new year. Production of yarn has not increased to any extent. Certain numbers are scarce and producers have increased output on these yarns, to meet current demand. But a good part of current orders are being filled from stock.

The shortage is particularly noticeable in 100s and 150s; one firm is asking

(*Continued on page* 65)

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FABRIC MARKET REPORTS

TEXTILE WORLD ANALYST

◆Small Print Cloth Stocks' Effect Felt

SPOT demand for print cloths is as strong as it has been at any time this year, which to date has been one of the most active periods the cotton goods market has experienced; but there is a smaller call for goods for forward deliveries. From this it should not be assumed that sales are quiet. The reverse is true, but demand is not so widespread as has been recently seen.

As trading becomes less brisk it becomes more selective. There are several print cloth constructions which have not been active sellers during recent weeks, and these have actually shown price weakness within the last few days; active numbers such as 68x72s have, on the other hand, made advances since the latter part of last week, where spot shipments are being figured upon.

The activity and strength in 68x72s has been an outstanding development within the last two weeks. Sales of exceptional size in this construction have superseded the market flourish that occurred earlier this year in 80 squares which took a sharp upturn until they sold at 8c. for spot. The same situation exists at present in 68x72s and sellers having stock on hand are able to sell freely at prices ⅛c. to ¼c. higher than for April, May and June deliveries.

Large demand for this print cloth has been developed through its substitution by a number of dress concerns for 80 squares. Dollar dresses formerly made with 80 squares may have 68x72s in them in the near future.

Activity Until Summer

Although there may be a short period of less active trading in print cloths, there is little to indicate that anything more serious is at hand. Fundamentally the whole situation continues strong, stocks being further reduced. While bulk of spring buying may soon be satisfied, lack of inventories in all hands, down to the consumer, is expected to be a bullish factor until summer.

Low count carded broadcloths have been selling well this week, but there is smaller interest shown in high count combed qualities. Sheetings have been less active. There is more interest being displayed in fabrics used in making work clothes and houses handling such lines report trading as active as has been seen this year.

Sheetings and drills which have yet to show the activity that has been seen so far this year in print and broadcloths, have not improved this week. Opinion is that a broad buying movement in them is overdue. In the meantime reports indicate that a steady depletion of stocks is taking place. Colored goods of all descriptions have been selling in large volume, a number of selling concerns reporting a larger interest than for two years. Sales of finished cotton goods are large, being accelerated by low prices quoted by converters and retailers.

◆Low-Priced Prints Slashed to Clear

STRONG consumer tendency away from $10.75 dresses has brought a pronounced weakening of cutter demand for certain popular-price broadsilks, especially prints, and the current market sees much underselling. Broadsilk mills which have quantities of prints on hand are slashing prices to clear. The market at this end is as soft as it has been any time during the last 12 months; the rush to dispose of prints is due partly to the growing fashion importance of plain colors. Broadsilk manufacturers are not enthusiastic about any lines at present, but they are holding steady on their higher-quality plains, and a moderately good tone is noticeable at that end.

Prints Selling for 70c.

Numerous of the printed crepes and other fabrics, made to sell to the trade at $1.15 are being cleared at 70 to 75c. Garment manufacturers respond indifferently to the bargains; these houses have had rough sledding for some weeks, due to consumer preference for the lowest-price lines, and the cutters are obliged to make drastic reductions themselves to effect turnover on finished garments. There is considerable quantity of distress prints available in New York, and no steadying is looked for until the bulk of that stock has been disposed of.

Shantungs and chiffons help to brighten the picture. These fabrics hold firm and, while demand is still light, both manufacturers and retailers are increasing their orders. Shantungs move best in the low-price ranges, though there is a fair call for the novelty printed numbers. Broadsilk producers have slackened their output of summer lines and the situation at that end is somewhat more promising.

Generally the broadsilk outlook is uncertain. The larger mills anticipated the decline in popularity of prints and managed to dispose of considerable stock prior to the weakness. Weavers do not look for any sudden improvement, but they expect demand for summer lines, especially chiffons and shantungs, to pick up slowly through April.

◆New Men's Wear Prices Please Trade

MEN'S wear lines for fall have been and are now being shown with less blowing of horns than in a good many years. New prices gain a foothold in the market as named by various houses without any formal announcement in many cases. This seems to work out satisfactorily with all concerned, as buyers have been placing business for weeks on the basis of prices which the sellers would eventually name on the heavyweights.

Reaction to the 7½ to 10% reductions on staples named by the American Woolen Co. and others who have followed the same price policy, has been favorable. Some say that reductions were not so drastic as they had expected, while majority seems to feel they are in line with what most of the trade anticipated.

New Prices, "Just Right"

One of the large clothiers said that the prices were "not too low," but were "just right." Of course that is the sort of a reaction a clothier would be expected to have. What will the new prices mean? One number of the American's was lowered from $2.02 down to $1.85, their No. 8020. According to this clothier it may, although not necessarily, mean that the chain clothing stores that have been specializing in men's $22.50 suits, may find it possible to lower their prices, and talk was heard that some may see the way clear to price suits, in not many months, down to $20.50 for approximately the same quality which has been selling at $22.50.

It is not believed that the reductions so far named will permit most stores to do this as the cloth reductions do not seem quite to justify this sort of a cut. Opinion is that it is extreme enough to be passed on to the retailer and perhaps the consumer in some form, the extent of this being dependent upon the position of the individual seller.

A fair volume of duplicates is being received by men's wear manufacturers and indications are that this will continue for several weeks. Good trading in duplicate tropicals is expected for a time yet.

The new one-price policy adopted by a large number of men's wear selling houses is the subject of favorable comment. The fact that one price is named to all does not necessarily mean that customers who place orders for 100 or 500 pieces will not receive a lower price than those who order 5 pieces; but it does mean that all buying in 100 piece lots will be quoted the same price, which will result in more confidence.

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KNIT GOODS MARKETS

TEXTILE WORLD ANALYST

◆See Late Rush For Swimsuits

BATHING-SUIT demand is steady, but considerably lighter than this time last year. While it is too early to say definitely, there is possibility of high-pressure buying and a congested situation in May; this would be quite likely, if the weather proved unusually warm. Distributors bought actively through winter and in January swimsuit producers were in a good position. Let-down in buying during the last few weeks, has somewhat changed the picture, however, and present sales are less satisfactory.

It is hard to guage outerwear outlook as a whole. Heavyweight sweaters are very backward; knitters and agents are discouraged by buyer indifference, though it appears to be merely a case of delay, and concentrated buying in May and June could conceivably bring figures up to scratch. Distributors tend more and more to narrow the time span beween purchase and sale. Spring sweaters, which did well for eight weeks, have also slackened; knitters believe this to be a temporary lull, due to cold weather. A few fancy sweater lines were in good call this week; this division of the market is still confident; there is little distress merchandise available, prices hold steady and manufacturers are fairly well satisfied with their position.

◆Spring Underwear Lines Active

LIGHTWEIGHT underwear, especially cotton, moves actively, and some manufacturers find first quarter sales compare favorably with those of the same period last year. Production is being accelerated and there is no difficulty in making spot delivery. Prices are steady and the market tone is firm. Producers are much encouraged and are hopeful that demand will continue; four more weeks of active movement would find them in a good position regarding spring lines. Rayon underwear, both men's and women's, is in demand, though the real seasonal business has not yet developed. There is increasing emphasis on rayon fancy panties for women, and some factors regard this as a big line for summer. Rayons are expected to pick up steadily from now on; production has increased, but so far output does not seem to be greatly in excess of demand. Mill men are still somewhat cautious regarding producing for stock.

There is little distress merchandise in the market, this applying both to cotton and to rayon lightweights. Easter demand has been so split up that there is no longer any recognized definite Easter season. A certain amount of specifically Easter business was placed this week, but there is no concerned rush.

Need Seasonable Weather

Underwear knitters, like other knit wear groups, feel the need of warm spring weather, to spur interest among distributors. Generally, the outlook is better, though demand is strictly localized to immediate needs. Distributors gradually gain confidence, but keep stocks to minimum and cover ahead only when absolutely necessary. Heavyweight underwear is still very much in the backwoods; sales are light and scattered. Several important firms, indeed, have not even shown their fall underwear lines yet, and those whose lines opened in January have done little business. All are resigned to a backward season.

◆Full-Fashioned Hosiery Stronger

THE tone of the women's full-fashioned hosiery market grows steadily stronger, in direct proportion to the decline in surplus stocks. There has been a sharp drop in the quantity of distress merchandise available, and prices are firm. Knitters talk less of a price advance than they did, but they get their prices with less haggling than usual. A significant development is the shortage of irregular women's full-fashioneds; several Worth Street factors reported that buyers were paying 25 to 50c. premium on these lines. Regulars are holding their own.

Easter call for full-fashioned hosiery is considerably below normal, but this has caused little surprise, and knitters will be glad if sales continue at their present pace. The market fell into such a state of chaos last year that no restorative could bring quick recovery, and manufacturers are resigned to a slow come-back. The best sign is that the firming, though slow, is steady; things have improved materially since January, and continuation of the curtailment policy will bring further strength.

A Buying Spurt

There has been a spurt of buying this week, and some mills are being rushed for delivery. Knitters showed the writer numerous telegrams and letters asking them to speed up shipments. Some mills are sold ahead and are asking four weeks for delivery. Both full-fashioneds and infants ⅝ stockings are in good call. Orders, of course, continue small; distributors prefer to chance a delay in delivery, even though it means a spell of empty shelves, rather than buy ahead. Reports indicate very small hosiery stocks in hands of jobbers and retailers. Some distributors who bought big in January, have exhausted their stocks and are pressing mills for deliveries. Retailer confidence is stronger, but sales prospects for spring and early summer are not definite enough to spur advance buying. Infants' and childrens' anklets which should be active now for the mild season, are slow; and infants' ⅝ stockings sell much better than anklets. Cold weather has delayed pick-up on the anklets and similar lines, and the hosiery market looks for further improvement, when weather warms. Men's hosiery is steady, with all lines moving cautiously and prices firm. There is pressure in a few instances, especially specialty lines.

◆

Further Hosiery Standards Announced

Standard measurements on the folded cuff lengths of boys' golf hose and children's seven-eighths length hosiery have been prepared by the Research Associate of the National Association of Hosiery & Underwear Manufacturers at the Bureau of Standards, Washington. These standard measurements have been officially approved by the board of directors, of the National Association, it is announced by John Nash McCullaugh, managing director.

The new standards follow:

Sizes	Boys' Golf Hose Proposed Standard Cuff Length Inches	Sizes	Children's ⅞ Hosiery Proposed Standard Cuff Length Inches
6– 6½	3.0	6– 6½	2.5
7– 7½	3.0	7– 7½	3.0
8– 8½	3.5	8– 8½	3.0
9– 9½	3.5	9– 9½	3.5
10–10½	3.5	10–10½	3.5

A tolerance of one-quarter inch, plus or minus, is allowed from the figures given in the table.

Method of measurement follows: The length of the cuff shall be measured on the stocking with the cuff folded ready for packing. The stocking shall be laid out flat without tension on a smooth surface. The length of the cuff shall be the distance from the top to the bottom of the folded cuff measured at the center in a line parallel with the front line of the stocking.

Advantages to be derived from the adoption of these standards may be summarized as follows: (1) The satisfaction of the consumer; (2) the fixing of a definite practice within the mill; (3) formation of a better basis of agreement between the manufacturer and buyer, thus eliminating one more chance of misunderstanding.

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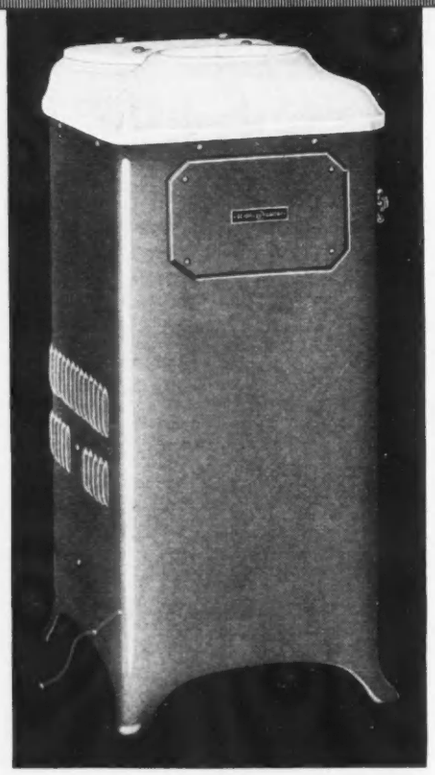

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TEXTILE FINANCIAL NEWS

TEXTILE WORLD ANALYST

◆American Woolen Annual Meeting

ANNOUNCEMENT that the entire executive offices would be removed from Boston to New York and details of the profit sharing agreement entered into with executives were among the features of the annual meeting of the American Woolen Co., held in Springfield, Mass., March 24. The move to New York will take place about May 1, and, at the same time, the wool buying, waste, engineering, traffic and chemical departments will be transferred to Shawsheen village. The company will remain a Massachusetts corporation, the general counsel serving as clerk and remaining in Boston. Benefits of the move are said to be the avoidance of duplication of effort, rental saving and nearness to the merchandising center.

Details of the profit sharing agreements with Lionel J. Noah, president, Moses Pendleton, vice-president and general manager, and W. B. Warner, chairman of the executive committee, were approved. After the company earns $2,000,000, as determined by a formula set forth, Mr. Noah is to receive 4% of the next $1,000,000, 5% on the next $1,000,000, and 6% on any further balance. Messrs Warner and Pendleton are to receive 2.5%, 3.125% and 3.75% by similar calculations.

Robert H. Montgomery, general counsel, presided at the meeting and in his remarks stated that the new management was not ready to make any predictions, but revealed that the mills have been operating at about 50% of capacity this year as compared with 40% last year. He announced that Patterson, Teele and Dennis, auditors and accountants, had been employed to audit books, study methods and make recommendations to the end that all unnecessary overhead might be eliminated and the business conducted with the greatest efficiency. It was also announced that Albert S. Scott, president of Lockwood, Greene & Co., was making a personal survey of the closed plants of the company with a view of reducing overhead charges on idle mills.

F. S. Connett, formerly vice-president in charge of security buying department, Brown Brothers Harriman & Co., was elected treasurer to succeed William H. Dwelly, resigned. It was voted to increase the executive committee from three to six and to provide a secretary for the committee. At the meeting 531,619 shares of stock, out of 878,648, were voted in person or by proxy.

U. S. Finishing Loss

The United States Finishing Co. and subsidiaries report for the year ended Dec. 31, 1930, net loss of $413,665 after depreciation, taxes and interest, but before loss of $42,705 on equipment discarded during the year, which was charged directly to surplus account. This is the first loss shown by the company since it was reorganized in 1913, and compares with net profit of $833,091 in 1929. Balance sheet as of Dec. 31, 1930 shows current assets of $1,968,247 and current liabilities of $958,429, leaving net working capital of $1,009,818, or $568,370 less than at the end of 1929.

In reporting to stockholders, President Henry B. Thompson said in part: "The loss incurred is due largely to the decreased yardage offered to us by the trade, and to the severe competition induced by the depressed conditions prevailing in all branches of the cotton textile industry."

Robert Reis & Co. Loss

The report of Robert Reis & Co., for the year ending Dec. 31, 1930, shows consolidated net loss of $573,197 after depreciation and interest, as compared with a net loss of $390,052 shown in the previous year. Accounts and notes payable at the close of 1930 were 33% less than at the close of the preceding year, A. M. Reis, president of the company, stated. Cash and accounts receivable, at the end of 1930, he added, represent 89% of accounts and notes payable, whereas they only represented 66% at the end of 1929. Inventories at the close of 1930 were valued at $1,430,439. This compares with inventories of $2,777,139 at the end of 1929 and $2,527,623 at the close of 1928.

Financial Briefs

Montreal Cottons, Ltd., with head office at Valleyfield, Que., and sales offices in Montreal, Toronto and Winnipeg, Canada, has just presented to shareholders its annual statement for the year ended Dec. 31, 1930. Sales for the year showed a decrease of $1,121,686 from the 1929 total, due to lower volume of orders and lower prices. The report also reveals a manufacturing loss of $329,360, before allowing for depreciation, compared with a profit of $116,188 for the preceding year.

Joseph Bancroft & Sons Co., bleachers, dyers and finishers, Wilmington, Del., for the year ended Dec. 31, 1930, reports a net loss of $825,817 after depreciation, interest and other charges, which compares with a net profit of $580,992 in 1929.

Maverick Mills, fine cotton goods, East Boston, Mass., reports a profit of $5,194 after depreciation, interest and taxes for the 1930 fiscal year, which compares with a net profit of $71,337 in 1929.

Propper-McCallum Hosiery Co., reports for year ended Dec. 31, 1930, net loss of $343,634 after expenses, other deductions and provision for Canadian income tax.

Boston Stock Auctions

The following sales of textile shares were made at auctions, Wednesday, March 18:

Shrs.	Mill	Par	Price	Ch'ge
60	Associated Textile	...	35-36½	.....
10	Farr Alpaca	100	44½	—6½
12	Bates	100	60½-60	+½
10	Meredith Linen	100	8	.....
265	York	100	9	.....
357	Total			

The following sales of textile shares were made at auction, Wednesday March 25:

Shrs.	Mill	Price	Ch'ge.
40	Associated Textile	36½	.....
5	Pepperell Mfg. Co	80½	+1½
5	Arlington Mills	18	+1½
5	Nashawena Mills	21½	.....
25	Plymouth Cordage	68½	—½
36	Ludlow Associates	105	—9
116	Total		

Textiles on N. Y. Exchanges

The following shows the movements of the leading textile stocks listed on the New York Stock Exchange and Curb for the week ended March 24.

	High	Low	Last Sale	Net Change
Adams Millis	31½	28½	31	+ 2½
*American Thread, pfd	3½	3½	3½	+ ½
American Woolen	11	10½	10½	+ ½
American Woolen, pfd	39	37	38	+ 3/8
*Assoc. Rayon, pfd	59½	59	59½	+ 1½
Belding-Heminway	3½	2½	2½	— ½
Botany Mills, A	2½	2	2	.....
Cannon Mills	25	23½	25	+ 1½
Century Ribbon	5½	4	5½	+ 1
Collins & Aikman	15½	14	14	.....
Consolidated Textile	1½	1½	1½	+ ⅛
Durham Hosiery, pfd	21½	21	21	— ½
Gotham Hosiery	10	8	8	— ½
Industrial Rayon	83	80	80½	+ ½
Kayser, Julius	24½	20½	22	— 1½
Kendall, pfd	45½	44	45½	+ 4½
Mallinson	4½	4	4	— ½
Mohawk Carpet	18½	18	18	+ ½
Munsingwear	28½	28½	28½	+ ½
Pacific Mills	26½	23½	25½	+ 2½
*Powdrell & Alexander	25½	25½	25½	+ ⅛
*Propper-McCallum	3½	3½	3½	— 1½
Real Silk Hosiery	24½	23	23	— 1½
*Tubize Chat. B	9	8½	8½	+ ½
United Piece Dye Works	29½	28½	28½	— 1½
Van Raalte	10	10	10	.....

*Listed on Curb.

Rayon Outlook Improves

(*Continued from page* 59)

four weeks on shipment of 150/60s, and others ask at least two weeks for deliveries. Manufacturers gradually grow more confident and are producing actively, but they still hesitate to cover ahead on yarn requirements. There is little price-cutting in the market; occasionally manufacturers try to push prices down, but this tendency has declined a lot in the last six weeks.

Producers find much of current buying represents new business, attracted by the price cut. Manufacturers of low-priced textile products especially are showing more interest, as they have ceased to regard rayon as a luxury and are using it for production of merchandise which has a strictly price appeal.

QUOTATIONS

at close of business, Mar. 25, 1931
Prices cover average qualities unless otherwise stated

Cotton Goods

	Mar. 25	Mar. 18	Mar. 27 1930
PRINT CLOTHS			
27 -in., 64x60, 7.60	3¾-4c.	3¾-4c.	4⅜c.
38½-in., 64x60, 5.35	5½c.	5½-5⅝c.	6¼c.
39 -in., 68x72, 4.75	6½-7c.	6½-6⅝c.	7¼c.
39 -in., 72x76, 4.25	7⅛-7¼c.	7⅛-7¼c.	8⅛c.
39 -in., 80x80, 4.00	7⅜-7⅝c.	7⅜-7⅝c.	9c.
BROWN SHEETINGS			
36-in., 56x60, 4.00	5⅜c.	5⅜c.	7⅛-7⅜c.
36-in., 48x48, 3.00	6¼c.	6¼c.	9 -9¼c.
37-in., 48x48, 4.00	5¼c.	5¼c.	6¾-7 c.
PAJAMA CHECKS			
36½-in., 72x80, 4.70	6⅜c.	6⅜c.	7⅛-7⅜c.
36½-in., 64x60, 5.75	5⅛-5⅜c.	5⅛-5⅜c.	6½c.
MISCELLANEOUS			
Drills, 37-in., 3 yd.	6⅜c.	6⅜c.	9 c.
Denims, 2.20	12 c.	12 c.	15c.
Tickings, 8 oz	15½c.	15½c.	18¾-19½c.
Standard prints	7⅛c.	7⅛c.	9⅛c.
Eastern staple ginghams, 27-in.	8 c.	8 c.	10 c.

Cotton Waste

Peeler comber	9 - 9¼
Peeler strips	8 - 8½
Sak. comber	8½- 8¾
Choice willowed fly	3⅜- 4½
Choice willowed picker	3 - 4
Sak. strips	9½-10½
Linters (mill run)	2½- 3½
White spooler (single)	7 - 7⅛

Cotton Yarn

CARDED (Average Quality)

Double Carded 2c.—4c. higher according to quality

SINGLE SKEINS OR TUBES (Warp Twist)

4s to 8s	$0.18	22s	$0.22
10s	- .18½	24s	- .23
12s	- .19	26s	- .24
16s	- .20	30s	- .25
20s	- .20½	40s ex.qual.	- .37

TWO-PLY SKEINS AND TUBES

8s-2	$0.18 -18½	26s-2	$0.24½
10s-2	.18½-19	30s-2	- .25½
12s-2	.19 -19½	36s-2	- .31½
14s-2	.19½-20	40s-2	- .33
16s-2	.20 -20½	40s-hi.brk.	- .37
20s-2	- .21	50s-2	- .41
24s-2	- .23½	60s-2	- .51

SINGLE WARPS

10s	$0.19	24s	$0.24 - .24½
12s	- .19½	26s	- .25
14s	- .20	30s	- .26
16s	- .20½	40s.ex.qual.	.37 - .38
20s	- .21		

TWO-PLY WARPS

8s-2	$0.18½	24s-2	$0.24
10s-2	.19	26s-2	- .25
12s-2	.19½	30s-2	- .26
14s-2	.20	40s-2 ordin.	- .33
16s-2	.20½	50s-2	- .42
20s-2	.21- .21½	60s-2	- .52

8s-3 and 4-ply skeins and tubes; tinged, 17-17½; white, 18½; waste, 16½

HOSIERY CONES (Frame Spun)

8s	$0.18½	22s	$0.21½- .22
10s	.18½- .19	24s	.22½- .23
12s	.19 - .19½	26s	.23½- .24½
14s	.19½- .20	30s tying	- .24½
16s	.20 - .20½	30s reg.	- .26
18s	.20½- .21	30s ex.qual.	.28 - .29
20s	.21 - .21½	40s	.33 - .34

COMBED PEELER (Average Quality)

TWO-PLY—(Knitting Twist) Cones

20s-2	$0.32 - .33	60s-2	$0.50 - .52
30s-2	.36 - .37	70s-2	.60 - .62
36s-2	.38 - .39	80s-2	.72 - .74
40s-2	.39 - .41	90s-2	.88 - .90
50s-2	.45 - .46	100s-2	1.08 -1.10

WARPS, SKEINS AND CONES

TWO-PLY—(Warp Twist)

20s-2	$0.33	60s-2	$0.51 - .53
30s-2	- .37	70s-2	.61 - .63
36s-2	- .39	80s-2	.73 - .74
40s-2	- .41	90s-2	.89 - .90
50s-2	- .46	100s-2	-1.10

SINGLES

12s	$0.27½- .28	30s	$0.35 - .36
14s	.28 - .28½	38s	.38 - .39
16s	.28½- .29	40s	.39 - .40
18s	.29 - .29½	50s	.45 - .46
20s	.30 - .30½	60s	.51 - .52
24s	.31½- .32½	70s	.61 - .62
28s	.35 - .36	80s	- .72

MERCERIZED CONES—(Combed, Ungassed)

26s-2	$0.49 - .50	90s-2	$1.28 -1.29
30s-2	.51 - .52	100s-2	1.58 -1.59
36s-2	.54 - .55	120s-2	1.98 -1.99
40s-2	.57 - .58	30s	- .63
45s-2	.59 - .60	40s	- .68
50s-2	.61 - .62	50s	- .75
60s-2	.69 - .70	60s	- .83
70s-2	.81 - .82	70s	- .95
80s-2	.93 - .94	80s	1.15 -1.17

Cotton Prices and Statistics

FLUCTUATIONS OF FUTURES

	Closed Mar. 19	For Week High	For Week Low	Closed Mar. 25	Net Chge.
March	10.85	10.89	10.57	.....	.....
April	10.90	10.91	10.72	10.72	—.18
May	11.01	11.02	10.70	10.82	—.19
June	11.13	11.13	10.95	10.94	—.19
July	11.25	11.28	10.93	11.06	—.19
August	11.35	11.37	11.18	11.17	—.18
September	11.45	11.47	11.29	11.29	—.16
October	11.55	11.59	11.21	11.39	—.14
November	11.65	11.68	11.47	11.48	—.17
December	11.76	11.80	11.39	11.57	—.19
January	11.85	11.89	11.49	11.66	—.19
February	.....	.....	.....	.....	.....

SPOT FLUCTUATIONS FOR WEEK

(Middling)

	New York	New Orleans	Liverpool
Thursday, Mar. 19	10.95	10.60	5.98
Friday, Mar. 20	10.90	10.55	5.95
Saturday, Mar. 21	11.00	10.60	5.94
Monday, Mar. 23	10.80	10.44	5.99
Tuesday, Mar. 24	10.80	10.44	5.85
Wednesday, Mar. 25	10.80	10.59	5.88

FOREIGN COTTONS

Egyptian Cotton

Alexandria Exchange, Mar. 24		Change
March Sak	17.61	—1.12
April uppers	12.39	—0.44

Mar.-Apr. Shipment c. i. f. Boston
(Tariff not included)

Fully good fair Sak	19.88
Fully good fair to good Uppers	15.30

(By Anderson, Clayton & Co.)

Foreign cottons	F. O. B. New York, Cents
Peruvian Tanguis Strict Middling	22
Peruvian Pima No. 1	19
Peruvian Moderate Rough	15
Peruvian Full Rough	21
China Tientsin No. 1	10¼
India Rough	7 to 10
India Smooth	7 to 10

(By Gerald G. Loeb, New York.)

BASIS MIDDLING

	Saturday, Mar. 21	Saturday, Mar. 14
10 Markets average	10.30	10.11
Memphis	9.75	9.55

PREMIUM STAPLES

First Sales from Factors Tables at Memphis

Grade Strict Middling	Prices Steady
1⅛-in	12.50—12.75c.
1 3/16-in	14.00—14.30c
1¼-in	18.75—19.00c.

CURRENT SALES

	For Week	Prev. Week	Week Before
Memphis total	10,953	16,883	12,994
F.o.b. included in total	8,342	10,892	9,769
10 markets	40,879	45,903	46,547

MEMPHIS RECEIPTS, SHIPMENTS, ETC.

	For Week	Last Year	Year Before
Net receipts	8,099	9,224	16,164
Gross receipts	18,675	26,207	40,566
Total since Aug. 1, net	608,666	886,805	780,882
Shipments	30,356	33,313	41,986
Total since Aug. 1	1,053,406	1,441,719	1,438,677
Total stock	293,247	373,858	224,936
Decrease for week	11,681	7,101	1,420
Unsold stock in hands of Memphis factors	37,452	52,671	.....
Decrease for week	5,620	3,001	.....

AVERAGE PRICE MAR.-APR. SHIPMENT HARD WESTERN COTTON

F.o.b. New England

	Middling	St. Middling
1 1/16-in	13½-13¾c.	13¾- 14c.
1⅛-in	14 -14¼c.	14¼- 15c.
1 3/16-in	15¾-16¼c.	16½- 17c
1¼ in	20 -22c.	22 - 24c.

Basis on New York, May 10.84c.

SPOT FLUCTUATIONS AND STOCKS

Markets	Middling Mar. 18	Middling Mar. 25	Sales	Stocks This Week	Stocks Last Year
Galveston	10.80	10.65	3,179	568,800	305,743
New Orleans	10.60	10.59	5,034	781,670	436,675
Mobile	10.00	9.90	1,762	249,482	15,828
Savannah	10.39	10.33	1,443	361,268	48,034
Norfolk	10.63	10.50	713	89,714	54,513
New York	10.95	10.80	2,498	229,208	95,482
Augusta	10.31	10.13	1,768	97,909	86,605
Memphis	9.75	9.60	17,135	291,312	365,023
St. Louis	9.80	9.80	.....	10,583	10,842
Houston	10.70	10.60	7,866	1,234,528	842,866
Dallas	10.20	10.05	10,107	14,107	12,220

DIFFERENCES ON AND OFF MIDDLING WHITE GRADES

	Dallas	Memphis	Montgomery	Augusta	Average
M.F	.75†	1.00†	.85†	.75†	0.88†
S.G.M	.60†	.75†	.75†	.63†	.70†
G.M	.50†	.50†	.60†	.50†	.52†
S.M	.35†	.25†	.35†	.25†	.31†
S.L.M	.50*	.75*	.50*	.50*	.51*
L.M	1.25*	1.25*	1.25*	1.25*	1.27*
S.G.O.**	2.00*	1.80*	2.25*	1.75*	2.06*
G.O	2.75*	2.00*	3.00*	2.25*	2.71*
YELLOW TINGED					
G.M	.50*	.75*	.50*	.50*	0.58*
S.M	.75*	1.00*	1.00*	.75*	0.93*
M.**	1.50*	1.25*	1.50*	1.25*	1.43*
S.L.M	2.00*	1.75*	2.15*	2.00*	2.02*
L.M.**	2.75*	2.00*	2.75*	2.75*	2.70*
YELLOW STAINED					
G.M	1.50*	1.75*	1.50*	1.25*	1.48
S.M.**	2.00*	2.00*	2.00*	2.00*	2.03
M.**	2.75*	2.50*	2.75*	2.75*	2.73
BLUE STAINED					
G.M.**	1.50*	1.50*	1.50*	1.50*	1.53*
S.M.**	2.00*	1.75*	2.00*	2.00*	2.03*
M.**	2.75*	2.25*	2.75*	2.75*	2.70*

**Grades not deliverable on contract. †On Middling *Off Middling.

Wool

OHIO, PENNSYLVANIA AND WEST VIRGINIA (IN GREASE)

Fine delne	$0.29 –$0.30	⅜ blood	$0.23 –$0.24
Fine clthg	.22 – .23	¼ blood	.22 – .23
⅛ blood	.26 – .27		

TEXAS AND CALIFORNIA (CLEAN BASIS)

Texas, 12 months	$0.61 –$0.63		
California, Northern	.55 – .58		

PULLED—EASTERN (CLEAN BASIS)

A.A.	$0.68 –$0.70	B-Super	$0.45 –$0.50
A-Super	.52 – .55	C-Super	.38 – .40

MONTANA, IDAHO AND WYOMING (CLEAN BASIS)

Staple fine	$0.65 –$0.68
Staple ½ bld.	.60 – .62
Fine and fine medium	.58 – .60
⅜ blood	.48 – .52
¼ blood	.42 – .45

MOHAIR—DOMESTIC

Best carding	$0.25 –$0.28
Best combing	.41 – .43

MOHAIR FOREIGN (IN BOND)

Turkey fair, average	$0.12 –$0.15
Cape firsts	.12 – .15

FOREIGN CLOTHING AND COMBING (CLEAN BASIS IN BOND)

Australia:	
70s	$0.48 –$0.52
64s	.42 – .45
58s-60s	.38 – .42

(IN GREASE)

Montevideo:	
58s-60s	$0.18 –$0.19
56s	.17 – .18
50s	.17 – .18
Buenos Aires:	
4s, 40-44s	$0.14 –$0.15
5s, 36-40s	.12 – .13

FOREIGN CARPET (GREASE BASIS IN BOND)

Aleppo	$0.22 –$0.24
China: Combing No. 1	.14 – .15
China Filling Fleece	.12 – .14
Szechuen ass't.	.12 – .14
Cordova	.14 – .15
Scotch black face	.15 – .17
East India: Kandahar	.20 – .22
Vican'r	.24 – .26
Joria	.23 – .24

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s 36s	$0.75 –0.80
2-24s 40s	.85 – .87½
2-26s 44s	.87½– .90
2-28s 46s	– .97½
2-30s 48s	1.00 –1.02½
2-32s 50s	1.05 –1.07½

(Single yarns 5c. less than above)

2-36s, 58s	$1.25 –1.27½
2-40s, 60s	1.32½–1.35
2-40s, 64s	1.35 –1.40
2-50s, 66s	1.50 –1.55
2-60s, 70s	1.90 –1.95

ENGLISH SYSTEM KNITTING

2-20s, 44s in oil	$0.77½–0.80
2-20s, 48s in oil	– .82½
2-20s, 50s in oil	– .85
2-20s, 56s in oil	.97½–1.00
2-20s, 60s in oil	1.15 –1.17½
2-20s, 64s in oil	1.25 –1.27½
1-15s, 46s dyed	– .97½
1-15s, 48s dyed	– 1.00
1-15s, 50s dyed	– 1.02½

(Oil yarns 17½c. less)

FRENCH SYSTEM

1-20s, 58s	$1.10 –1.12½
1-20s, 60s	1.15 –1.17½
1-18s, 64s, dyed	1.40 –1.42½
1-26s, 64s	1.20 –1.22½
1-30s, 60s, Warp	1.22½–1.25
1-30s, 64s, Warp	1.25 –1.27½
2-30s, 64s, Fancy mixes	1.50 –1.52½
2-40s, 64s, Zephyrs	– 1.40
1-50s, 66s	1.47½–1.50
2-50s, 66s	1.62½–1.65
1-60s, 70s	1.85 –1.90
2-60s, 70s	1.95 –2.00

FRENCH SPUN MERINO WHITE

1-30s, 50-50-58s on cops	$1.00 –1.02½
1-40s, 50-50-60s on cops	1.15 –1.17½
1-40s, 50-50-64s on cops	1.17½–1.20
1-40s, 50-50-64s Australian cops	1.20 –1.25

Underwear mixes, 3c. additional.
Solid color, 35c. additional.

◆

Tops and Noils

TOPS—BOSTON

Fine (64-66s)	$0.83–$0.85
Half-blood (60-62s)	.80– .82
High ¾ blood (58s)	.65– .68
Aver. ¾ blood (56s)	.63– .65
Low ¾ blood	.60– .62
High ½ blood (50s)	.55– .58
46s S. A. and N. Z.	.51– .53
44s S. A. and N. Z.	.50– .52
40s S. A. and N. Z.	.48– .50

TOPS—BRADFORD, ENG. (MAR. 20)

Fine (70s)	29 d	¾ bld. (56s)	18½d
Fine (64s)	26½d	½ bld. (50s)	15½d
½ bld. (60s)	24½d	Cross-bred (46s)	13 d
¾ bld. low (58s)	20½d		

NOILS—BOSTON

Fine	$0.45–$0.48	High ½ bld.	$0.33–$0.35
Half-bld.	.40– .42	Low noils	.31– .33
Aver. ¾ bld.	.35– .38	Medium colored	.25– .30
Fine colored	.33– .38		

Wool Substitutes

WOOL WASTE

Lap, fine white	$0.65 –$0.68
Lap, fine colored	.48 – .52
Hard ends, fine white	.51 – .53
Hard ends, ½ blood white	.35 – .38
Hard ends, fine colored	.25 – .27
Hard ends, medium colored	.18 – .20
Card, fine white	.25 – .28
Burr, fine Carbonizing	.30 – .33

OLD WOOLEN RAGS (GRADED FOR MFRS.)

Merinos, Coarse Light	$0.04½–$0.05
Merinos, Fine Dark	.04 – .04½
Merinos, Fine Light	.11 – .11½
Serges, Blue	.06 – .06½
Serges, Black	.06 – .07
Serges, Red	.08 – .09
Knit, White	.24½ – .25
Knit, red	.11 – .12
Knit, Light Hoods	.12 – .13
Worsted, Light	.05½– .06
Worsted, Blue	.06½– .07
Worsted, Black	.06½– .07

Silk Yarns

THROWN SILK (60 day basis)

	Nominal
Japan organzine, 2 thd. spec. gd. XX. sk. 85%	$4.10
Japan organzine, 2 thd. sp. crack. sk. 81%	3.70
Japan crepe, 3 thd. gd. XX bob. 83%	3.85
Japan crepe, 3 thd. sp. crack. bob. 81%	3.75
Japan crepe, 4 thd. crack bobbins, 78%	3.65
Japan grenadine, 4 thd. sp. grand singles, 87%	5.70
Japan grenadine 4 thd. 85%	5.40
Japan grenadine 3 thd. 90%	6.70
Canton crepe, 3 and 4 thd. ns. 14/16 on bobbins	2.45
Hosiery tram, 3 thd. Japan 90%	4.75
Hosiery tram, 5 thd. Japan, 85%	3.80
Hosiery tram, crack XX 78%	3.15

SPUN SILK YARNS (Terms: net 30)

40/2	$3.15	60/2	$3.35
50/2	3.25	62/1	2.35

Raw Silk

(60 Day Basis)

	13/15 White	20/22 White	20/22 Yellow
Super Grand, 86/88%	$3.50	$2.75	$2.70
Special Grand, 85%	2.95	2.65	2.65
Grand XX, 83%	2.85	2.80	2.80
Special Crack, 81%	2.70	2.55	2.55
Crack XX, 78%	2.62½	2.50	2.50
Extra Extra, 73%	2.55	....	....
Best Extra, 68%	2.50	....	....

Canton filature, new style, 14/16	$1.70
Canton filature, new style, 20/22	1.60
Tussah filature, 8 cocoon	1.15

NATIONAL RAW SILK EXCHANGE

	Close Mar. 18	For the Week High	For the Week Low	Close Mar. 24	Net Chge
March	2.58	2.61	2.40	2.47	—.11
April	2.56	2.56	2.40	2.44	—.12
May	2.48	2.47	2.34	2.37	—.11
June	2.42	2.44	2.31	2.36	—.06
July	2.44	2.43	2.32	2.36	—.08
August	2.41	2.42	2.32	2.36	—.05
September	2.40	2.41	2.32	2.34	—.06
October	2.40	2.40	2.32	2.33	—.07

Total contracts, 504. Total number of bales, 5,040. Total approximate value, $12,852. Trading unit crack XX 78% white 13/15.

Domestic Rayon

VISCOSE PROCESS

Denier	Filament	First	Second
50	14	$2.15	$1.95
75	18–30	1.35	1.25
100	18–40	1.10	1.00
125	30–50	1.00	.90
150	30	.70	.67
150	40	.75	.72
150	60	.85	.82
150	75–90	.85	.82
170	24–27	.75	.72
170	60	.85	.82
200	30	.75	.72
200	35–42	.75	.72
300	42–62	.63	.60
450	54–60	.63	.60
600	72–96	.63	.60
900	100–144	.63	.60

NITRO-CELLULOSE PROCESS

Denier	First Qual.	Second Qual.	Denier	First Qual.	Second Qual.
75	$1.35	$1.25	150	$0.75	$0.72
100	1.05	.95	175	.75	72
125	.95	.85			

CUPRAMMONIUM PROCESS

Denier	Filament	Price	Denier	Filament	Price
15	24	$3.10	65	45	$2.00
25	24	2.85	80	60	1.70
30	24	2.60	100	75	1.35
40	30	2.40	120	90	1.22
52	30	2.20	150	112	1.10
			180	135	.97

ACETATE PROCESS

Denier	Price	Denier	Price
45	$2.25 2.75	120	$1.90
55	2.05–2.55	140	1.30
65	2.45	150	1.40–1.85
75	1.80–2.70	200	1.55
100	1.65–2.45	300	1.50

Rayon Waste

Open bleached waste	$0.13½–$0.14½
Open unbleached waste	.11
Bleached thread waste (mfs.)	.10
Bleached thread waste (misc.)	.05– .07
Colored thread waste	.04
Colored clips	.04

CONVERTED RAYON WASTE

Bleached tops	$0.31–0.34
Unbleached tops	.30
Bleached noils	.12
Bleached garnetts	.13
Unbleached garnetts	.14
Colored garnetts	.12

Silk Waste

Kibizzo Kakai Grand XX	$0.54
Kibizzo Kakai Triple Extra	.48
Frison Grand Double	.52½
Pierced Cocoons	.53

Carded Yarn Mills Cut Night Work

THE discontinuance of night work for women and for minors under 18 years of age is already an established policy in practically all of the carded sales yarn mills, according to statements made by leading executives in a meeting held Tuesday at the Hotel Charlotte, Charlotte, N. C., under the auspices of The Cotton-Textile Institute.

B. B. Gossett, chairman of the group, presided and was assisted by W. Ray Bell of New York, executive vice-president of the Institute. Commended as the most constructive action ever taken by the industry, it was the opinion of those present that any deviation from this policy in the future would bring distress to the mills and hardship to the mill employees. In the opinion of many, night shifts in carded yarn mills will gradually become a part of the past. Indeed, it was brought to light today that many of the carded yarn mills which formerly operated night shifts have already stopped all night work.

The principle of making sales based on replacement cost was recommended as a sound foundation for merchandising and the mills were urged to continue their policy of avoiding overproduction by producing only in accordance with consumer requirements. The latter policy has met with success and the stocks of yarn have gradually diminished during the last several months so that unsold yarn at the present time amounts to less than two weeks of current production. At the same time the volume of unfilled orders was considered to be highly gratifying, amounting to 15 weeks of current production and being 10% in excess of the average volume at this period during the previous three years.

The Institute's offer to install adequate cost methods for carded yarn mills received favorable comment and was strongly recommended as a progressive feature of cooperative activity. It was announced that many mills had already indicated that they would take advantage of this opportunity.

February Cotton Consumption

Cotton consumed during February totaled 433,510 bales compared with 494,396 bales in February, 1930, according to the Bureau of the Census. For the seven months ended with February consumption was 2,899,942 bales against 3,808,741 bales for similar period in 1929-30. Last month 25,763,408 spindles were active against 28,920,162 the year previous.

Resign From Cannon Firm

J. C. Scott, who has been New England representative for Cannon Mills, Inc., Philadelphia, cotton, silk and mercerized yarns, has resigned from that firm, effective May 1.

J. G. Hillborn who has been representing the Cannon organization in the yarn field in southern territory, with headquarters in Chattanooga, has resigned from that company to take effect April 15.

Chas. M. Schwab Controls Lehigh Valley Silk Mills

The Lehigh Valley Silk Mills, with plants at Bethlehem, Fountain Hill and Williamsburg, all in Pennsylvania have been acquired by Charles M. Schwab, chairman of the board of the Bethlehem Steel Corp., and the company has been reorganized, with Edward H. Schwab, brother of Mr. Schwab, as president. A recent announcement to the trade by Edward H. Schwab, told of the company's new policies and stated that service to the customer would be emphasized. The inauguration of a research department is announced. Lehigh Valley Silk Mills is capitalized at $225,000 and does an extensive silk throwing business.

Carpet Opening Change Improbable

There is little likelihood of a change in the dates of the floor covering seasons, according to Irving S. Paul, president of the Carpet Manufacturers' Institute of America, in an article in the monthly bulletin of the National Retail Furniture Association. Mr. Paul points out that the date set for the summer furniture shows in Chicago and Grand Rapids, which is simultaneous with the opening of the floor covering market in New York, would have a healthy effect upon both. The two seasons customarily start on the first Monday in June and December.

Du Pont Rayon Moving to N. Y.'s New Skyscraper

It has been announced by former Gov. Alfred E. Smith, president of Empire State, Inc., New York, that the complete ninth, tenth and eleventh floors of the new Empire State Building, have been leased to the E. I. du Pont de Nemours & Co. of Wilmington, Del., to be occupied by a number of their component companies, including du Pont Rayon Co.

Mr. Smith said the lease calls for a gross rental of approximately $3,000,000 over a term of years.

Enka to Move; Will Handle Sales Direct

C. M. Carr, vice-president of American Enka Corp., rayon yarn manufacturers, New York, announced that that company would move its New York offices in April from 200 Madison Ave., to a new office building at Church and Franklin Streets, where it will occupy the entire top floor. This location is in the Worth St. district, adjacent to converters, selling-houses and mill agents with whom the firm does business. At the time of moving the American Enka Corp. will take over its own selling activities, which hitherto have been handled by Cannon Mills yarn department. H. H. Anning, sales manager for Enka, has built up a complete sales department.

American Printing Co. Strike Settled

Strike which had been in progress for two weeks at No. 2 Mill, American Printing Co., Fall River, Mass., was settled last Saturday. Details of settlement were not made public, but it is understood that they represent a compromise.

The strike was called when the plant, which had been closed down since last June, was re-opened with a reduced wage scale. Management stated during course of strike that re-opening had been urged by civic and state leaders as an aid to unemployment and that wages represented the best that could be paid if plant was to run at all. Plans for opening the other units of the company are being considered.

American Opens Overcoatings

American Woolen Co., New York, opened new overcoating lines, for 1931 fall season, March 23. Prices showed marked concessions as compared with a year ago. Quotations varied from 5c. lower on Sawyer wool fleece to $1.25 lower on specialties, such as boucle, 5744. New numbers include a wool and llama fleece at $2.00; a new Whitney, range 2531, at $2.25; a new cloth from Assabet Mills, range 18430, at $2.75; and a new E.E. cloth in duvetyn finish, number 5424, 32 to 34 oz., at $1.80.

Boston Wool Receipts

Receipts of domestic and foreign wools at Boston, also imports at Philadelphia and New York for the week ended Mar. 21, based upon data compiled by the Market News Service of the Bureau of Agricultural Economics, Department of Agriculture, follow:

	Week Ended Mar. 21	Total to Date 1931	Total to Date 1930
Domestic	3,627,000	16,666,000	15,496,000
Foreign	533,000	11,681,000	21,068,000
Total	4,160,000	28,347,000	36,564,000
IMPORTS AT PRINCIPAL PORTS			
Boston	533,000	11,681,000	21,068,000
Philadelphia	1,036,000	8,753,000	20,003,000
New York	1,691,000	12,665,000	15,089,000
Total	3,260,000	33,099,000	56,160,000

Cotton Trade Facing Critical Test

No sharp or sustained improvement in profit margins for cotton manufacturers is probable during the next few months, according to a bulletin published by the Standard Statistics Co., Inc., New York.

Durene Fashion Show Impresses

THE efficient manner in which Durene has been adapted to the increased popularity of cotton fabric for women's wear was illustrated by a fashion show that was held at the Durene Association of America headquarters, March 18 and 19, in New York.

The style results that have been achieved through use of all-Durene fabrics or Durene used in conjunction with other fibers such as spun rayon, created a favorable impression upon 50 editors and fashion writers that attended the Wednesday showing and the same number of merchandising factors the following day.

Forty street, sport, spectator sports and evening fashions were displayed on models. Net effects in various types of knitted Durene cloths made by leading New York dress houses were shown. A white evening dress made of Durene net was an outstanding feature of the show while color contrasts in beach pajamas indicated another large potential field for this yarn.

Broadcloths made from Durene created favorable comment as did the eyelet embroidery costumes in the evening gowns. Importance of Durene effects in laces was emphasized, by Miss Kathryn Day, fashion counsel to the Durene Association, who described the various models.

E. L. Starr, director-treasurer of the group, spoke briefly, explaining the character of Durene and what the exposition was attempting to accomplish. He said that while mercerized yarns had long enjoyed a favorable reputation in the cotton textile field members of the Durene Association — identical with membership of the Mercerizers' Association of America—had set up the highest standards for the manufacture of Durene yarns.

Definite specifications have been created by the group to which all Durene yarns must comply, which acts as a guarantee to the buyer that fabrics or garments tagged "Durene" will meet quality requirements.

Mr. Starr pointed out that while the new dress fabrics shown were potential markets of almost unlimited size for Durene, to date the largest trades for consumption of the products of the group was in the knitting field, hosiery and underwear taking the largest volume. New fields are being opened up, especially in making of corsets and foundations, and in the high priced hosiery field in which Durene is expected to compete successfully against imported lisle hosiery.

World Wool Production Shows Slight Increase

A small increase in world production of wool for the 1930-31 season, outside Russia and China, compared with production the preceding year is reported in preliminary estimates by the Foreign Agricultural Service, U. S. Department of Agriculture. Production in 18 countries, which supply about four-fifths of the world's wool, is estimated at 2,708,000,000 lb., compared with 2,674,000,000 lb. in 1929, and with 2,728,000,000 lb. in 1928.

Other outstanding factors in the current world wool situation, according to the Foreign Agricultural Service, are continued low consumption in most of the important wool consuming countries; increased exports from and reduced stocks in exporting countries, but increased stocks in Europe and the United States, and world wool prices materially lower than prices a year ago, but advancing in recent weeks from the unusually low levels reached in the decline.

"Use-Once-Only" Collar Sought by British Cotton Industry

The problem of producing a stiff cotton collar at a sufficiently low price to permit of its being discarded after once wearing is now the subject of research in Lancashire, as a part of a new-uses-for-cotton campaign conducted by the British industry, according to a speech recently delivered by a British textile executive before the Oldhams Technical Association, the Department of Commerce is informed in a report from Trade Commissioner, Mr. William L. Kilcoin, London.

Mechanical Handling Exposition Gains Support

Announcement of the first National Exposition of Mechanical Handling, made a few weeks ago, has met, it is said, with enthusiastic response on the part of numerous individual concerns and associations. Plans are being made to stage the exposition in Grand Central Palace, New York, Nov. 30 to Dec. 5, 1931, on a larger floor area than was at first proposed.

New Boston Wool and Noil Firm

Melville C. Hall and Joseph M. Troy, formerly associated with H. Haigh & Co., Inc., Boston, Mass., have severed their connection with that firm and have formed the Hall-Troy Co., with offices at 246 Summer Street, Boston, as dealers and importers of wool, noils and specialty fibers. Mr. Hall is president of the new concern and Mr. Troy vice-president.

Consumers League Approve Step to Cut Night Work

Heartfelt rejoicing is expressed by the National Consumers' League over the recent voluntary action of 83% of the cotton mills in abandoning night work of women and minors.

Mrs. Florence Kelley, general secretary of the league, in a public statement to The Cotton-Textile Institute, describes this action as an "immeasurably important forward move" and states that "it is a source of great encouragement." With a ringing defence of the measure, the league minces no words in excoriating those who oppose this reform.

Termining night work by women in cotton mills "a horror," the League finds it chargeable with undermined family life, endangered life and health of mothers, neglect of children, and high infant mortality.

Blackstone Valley's "Ladies Night"

Blackstone Valley (Mass.) Mills Association will hold its annual ladies' night celebration in the East Douglas (Mass.) Town hall on April 15. A turkey supper will be served at 6:30 p.m., for which reservations have been made for 150 members and guests. An orchestra will provide music during the supper and also for dancing and other entertainment. The committee of arrangements includes: William A. Spratt, Paul Whitin Mfg. Co., Northbridge, Mass., Allan Smith, Uxbridge (Mass.) Worsted Co., Inc., Pascoag, R. I., Donald W. Barnes, Uxbridge, Mass., president of the association and George C. Dunn, Worcester, Mass., its secretary.

Wilson & Co. Inc., Cordage, Opens Larger Offices in Dayton

Wilson & Co., Inc., have removed to 661-663 Dayton Industries Building, Dayton, Ohio, where larger sales quarters and offices are had.

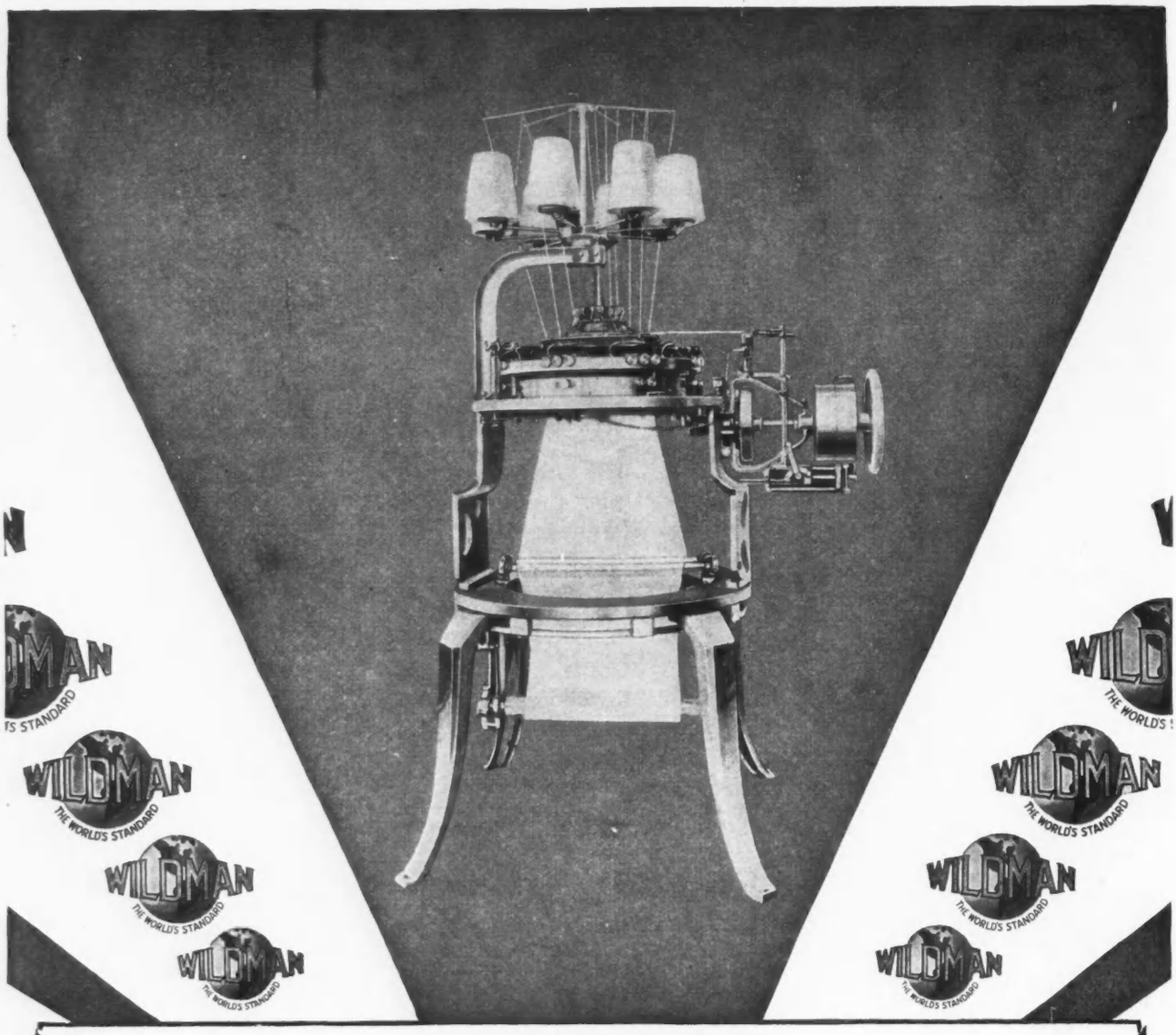
This selling firm handles a complete line of ropes, twines, oakums, packing, textile specialties, etc., acts as selling agents for several mills. Branch offices and stocks are maintained in Cincinnati and Detroit. James Wilson, III, is president, and Morris C. Redding is treasurer.

Borden's to Expand Rayon Branch

E. D. Witt, formerly with Marshall Field & Co., Chicago, will become associated with M. C. D. Borden & Sons, Inc., New York, in the near future. This indicates that the Borden firm intends to go into the rayon end of the wash goods business on a more extensive scale. Mr. Witt is regarded as a style expert, having given considerable time while at Marshall Field's to the styling of all kinds of fine wash fabrics.

To Sell Sheets and Blankets in Units

The latest development in merchandising of sheets, pillow cases and blankets, is the alliance of the sales departments of the Wamsutta Mills of New Bedford and the North Star Woolen Mill of Minneapolis. Sheets, pillow cases and blankets will be designed to harmonize. Only the highest quality goods will be sold.



When you think of Rayon
think of Wildman

WILDMAN MANUFACTURING CO.
Norristown, Pa.

WILDMAN
SPRING NEEDLE BODY MACHINE

Cross Warp Effects for Women's Coatings

(*Continued from page* 35)

position shown at *N*. From this movement it will be noted that the crossing thread, passing over the rod *H*, is slackened a corresponding length to that lifted between the mail and the doup harness *F* and the mail of the doup *E*. After the doup and easer are lifted the latter is returned to its normal position by means of a spiral spring. Owing to the tension on the crossing warp—which in the case of plain gauze is very considerable, alternate threads throughout the warp being over the rod—a very strong spring is necessary.

Upon examination of the lifting of the slip *D* and doup *E* in Fig. 7, it will be seen that the two lift together as one harness and that, to form the necessary lift for the right-hand crossing, the slip is not essential, the only extra requirement being the easing of the thread, as previously described.

A comparison of Fig. 6 with Fig. 8, however, will reveal that without the slip in the former example it is impossible to form a shed when the doup harness lifts. In the latter the slip is lifted in conjunction with the doup harness, and as the crossing thread is passed through the slip, as shown in Fig. 4, it is allowed to pass under the stationary with the slip, the latter sliding through the mail eye of the doup *E*, as shown at Fig. 8, and thus forming a correct opening of warp through which the shuttle might pass. While this operation is effected, the easer rod *H* remains in its normal position, as no extra strain is put upon the crossing thread during the lifting of the doup harness and slip.

The above examples illustrate the use of the easer and slip in the simplest form of crossed-warp effects, and under conditions when only one order of lifting the crossing threads is necessary. In more complicated examples in which two or more doups are necessary, it is essential to have corresponding numbers of easers and sets of slips. The principles involved in the foregoing, however, are precisely the same as in the most complicated examples.

By the use of the same system of harness mounting given at *C* in Fig. 1, modifications of plain gauze and leno interlacings may be obtained by varying the methods of drawing the threads through the respective harnesses, and also by altering the order of lifting the harnesses. Two simple examples are illustrated at *A* and *B*, Fig. 9. In both cases the crossing threads are point drafted, the first thread being drawn through the mail on the doup harness, then under the stationary and into the slip. In this case the doup harness lifts the crossing thread on the left-hand side of the stationary. The second crossing thread is drawn through the doup shaft on the *right*-hand side of the stationary thread, and on the *left*-hand side into the slip, a succession of these orders being adopted throughout the whole warp. This method of drafting, in conjunction with the same order of lifting the various harnesses required for Figs. 1 and 2, gives when the two warps come from separate beams, a series of waved lines facing each other, as shown in the plan view *A*, Fig. 9, and in the fabric *A*, Fig. 10. The effect produced from the use of one beam is shown at *C*, Fig. 10.

A further modification, repeating on three picks and produced from the same draft as the above, is given at *B*, Fig. 9, in which case it will be noted that the doup lifts on the first and second picks, the doup harness lifting only on picks numbered 3. The positions of the picks as shown in the plan view would not, however, be effected in the actual fabric, as the consequential lifts of the doup on the first two picks would draw these together, while the pick corresponding to the doup-harness lift would be isolated. This will be more clearly seen in the fabric *A*, Fig. 11, produced from two beams, the result of the use of one beam being shown at *C*, Fig. 11.

The lifting plans for the plan views given at *A* and *B*, Fig. 1, and *A* and *B*, Fig. 9, are shown at *A*, *B*, and *C*, Fig. 12, the five vertical spaces of which correspond to the various harnesses and easing rod represented at *C*, Figs. 1 and 9. In each of the three plans given, dots indicate the lifts of the slip; full marks, the doup; crosses the doup harness; vertical strokes, the stationary; and circles, the easer. Plan *A* produces the interlacing shown at *A*, Figs. 1 and 9; and plan *B*, the effect given at *B*, Fig. 1; while the structure illustrated at *B*, Fig. 9, is effected from plan *C*, Fig. 12.

N. C. to Prohibit Night Work by Women Under 18

The North Carolina State Senate has passed a bill prohibiting women under 18 years of age from working in textile and other industrial plants in that State. It becomes effective June 1.

This smart new entrance to Bliss, Fabyan & Co., Inc.'s New York office at 32 Thomas Street is attracting much attention. Black marble and chromium are used with brilliant blue Neon letters.

"Wear Cotton" Movement Gains Momentum in South

Reports from the South indicate that the "Wear Cotton" movement, initiated in Gastonia, N. C., several weeks ago, is gaining momentum every day. An attractive fashion show was staged in Wadesboro, N. C., by the local chapter of the Daughters of the American Revolution, March 20, in which stylish cotton frocks of all kinds were displayed. I. B. Covington, vice-president and superintendent, Wade Mfg. Co., delivered an address on the smart appearance and serviceability of cotton goods.

Another interesting style show featuring garments furnished by The Cotton-Textile Institute, Inc., and the Durene Association of America was presented in the High School Auditorium, Mount Holly, N. C., March 26. The event was sponsored by the local Civitan Club and received the cordial support of merchants and manufacturers, including the American Yarn & Processing Co., a member of the Durene Association.

A special meeting of the North Carolina Commercial Secretaries' Association is called for Kinston, N. C., March 27 and 28 for the purpose of still further extending the bounds of the movement to "wear cotton" throughout the State. The success attending the recent style show and wear cotton campaign conducted in Gastonia is responsible for this follow-up.

The cotton style show, arranged and sent out by The Cotton-Textile Institute, was displayed at the Spartanburg (S. C.) high school this week, attracting many visitors. John A. Law, president of the Saxon and Chesnee mills, delivered a short address at the show, commending the efforts of The Cotton-Textile Institute in promoting unselfishly the new uses for cotton.

Awning and Tent Group Meets

Henry G. F. Lauten was re-elected head of the Allied Awning and Tent Supply Industries at the second annual meeting held at offices of the Cotton Textile Merchants' Association, New York, March 18. Chester T. Williams, Foster & Stewart Co., was elected first vice-president and Louis T. Stanley, of Lang & Stanley, Inc., was re-elected treasurer; Walter T. Hudson was again elected secretary.

The following board of directors was elected and installed for a period of one year: Robert M. Brough, Alt., Foster & Stewart Co.; John R. Raible, Henry Edelstein, Alt., Fanner Manufacturing Co.; Walter C. Astrup and A. M. Solomon, Alt., Astrup Co.; J. C. Baumbach and J. J. Giel, Alt., Neptune Hardware Mfg. Co.; H. B. McCain, Brunsene Co.; Thos. D. Lewis, Geo. B. Carpenter Co.; Thos. Martin and C. M. Anderson, Alt., Martin Dyeing & Finishing Co.; Frank D. Mannion and Kenneth Rogers, Alt., McCampbell Co.; Charles Welford, Wham & Co.; Ray Couch, Britex Awning Cloth Co.

Bureau of Standards Studies "Eriometer" for Grading Wool

At present there is no suitable instrument available for the rapid, convenient, and accurate grading of wool on the established basis. The diffraction of light by a bundle of fibers was employed by Thomas Young in 1824 in a simple, ingenious optical device for measuring the average diameter of fibers and particles. At the Bureau of Standards an improved construction of Young's instrument (the eriometer) has been built and it is found that the accuracy of the instrument is quite sufficient for the required purpose. This work will be reported in detail in the Bureau of Standards Journal of Research for April.

Milwaukee Group Approves Outerwear Convention Plan

At a recent meeting in Milwaukee, the Western District, Knitted Outerwear Manufacturers' Association, approved plans to hold the annual convention of the National Knitted Outerwear Association, the parent body on April 14 in Philadelphia in connection with the Knitting Arts Exhibition, instead of in June at Atlantic City. A dinner meeting of the Western District will be held in Milwaukee, March 31, to nominate three national directors and three alternates to represent the Western District in the national organization.

Sale of Exchange in Brazil Limited to Actual Payments

In February new regulations went into effect in Brazil relative to the sale of exchange on outside markets. In brief the regulations forbid such sale except to cover actual transactions such as payment of foreign drafts on Brazilian markets, to cover purchase of imports, to cover credits opened abroad, for the transfer of securities and remittances. A system of proofs that these limitations are lived up to has been set up.

Navy Bureau Will Buy Textiles

Bids will be received by the Bureau of Supplies and Accounts, U. S. Navy, Washington, D. C., April 7, to supply it with 25,000 yd. buckram, white, not less than 35½ in. wide; 25,000 yd. checks, cotton blue, 30 in. wide; 5,000 yd. silesia, black, stay, not less than 35½ in. wide; 20,000 yd. Venetian, black, not less than 32 in. wide; 10,000 sheets, wadding, gray, approximately 30x36 in.

Committee Considers Silk Classification

A joint committee of representatives of the Silk Association of America, Inc. and the National Raw Silk Exchange has been appointed to consider the raw silk classification now in use in the New York market, and to recommend such modifications as thought advisable to bring it into harmony with the raw silk classification recently adopted in Japan. The Silk Association's committee includes Austin Cheney, chairman, Albert Bosshard, Stehli Silks Corp., and William Wheeler, Duplan Silk Corp. The Exchange committee includes F. D. Huntington, Real Silk Hosiery Mills; A. J. Borner, Hara & Co. and Douglas Walker, National Raw Silk Exchange. D. E. Douty has been designated as member at large.

S. C. Cotton Mill Men Again Sponsor Cotton Growing Prize

T. M. Marchant, president of the South Carolina Cotton Manufacturers' Association, announces that the association will again sponsor a state-wide cotton-growing contest, for which it provides cash prices totaling $2,000. The association has promoted these contests for the last five years, and the results have been gratifying in having the cotton growers of the State produce a staple that the mills can utilize.

Botany Fabrics for Robes

Botany Worsted Mills, Passaic, N. J., and New York, have distributed an illustrated folder which describes the new fabrics they have developed for bath and lounging robes, Botany Flannel and Botany Challis Prints. The robes will be merchandised with the Botany label sewed in.

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Business Literature

Worsted Loom. In an attractive booklet, employing aluminum-coated covers and margins, the Crompton & Knowles Loom Works, Worcester, Mass., describes its new high-speed worsted loom. Striking photographs, in which spots of light emphasize the details of new features, serve to clarify the story which the booklet tells.

Drying. Proctor & Schwartz, Inc., Philadelphia. New catalog describes this firm's entire line of dryers for textile uses; the catalog is supplemented by numerous illustrations in color.

Castings. Electrical Steel Founders' Research Group, Chicago. Recent activities among users of steel casting and four pages of standard specifications, are included in the July issue of "Research Group News."

Washers. James Hunter Machine Co., North Adams, Mass. Folder announces new "Iron-Clad Hunter Model H Cloth Washer" is now under development which will offer eight improvements, making for faster operation, lower costs, and longer machine life.

Warpers. Barber-Colman Co., Rockford, Ill. Booklet cites long period of operation of Barber-Colman warpers in mills and describes uses of this equipment.

Hard Rubber Protection. American Hard Rubber Co., Akron, Ohio. Booklet of 54 pages presents this firm's line of Ace Hard Rubber used as pipe fittings, valves, pumps, and utensils. Includes specifications and illustrations.

General Electric Circulars. New circulars issued by General Electric Co., Schenectady, N. Y., cover arc-welding equipment, reduced-voltage starters, thermostat, motors, controllers, etc.

Humidification. Manufacturers Machine Co., North Andover, Mass. Describes uses and advantages of Sjostrom atmospheric normalizer.

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Business News

General Refractories Co. Appoints Agent at Reading, Pa.

The General Refractories Co. has recently appointed the Davis Coal & Supply Co., Reading, Pa., as distributors of Grefco and Standard high temperature mortars and its Pennsylvania fire clay brick. The territory will include Schuykill, Berks, Lebanon counties and the northern part of Lancaster County.

D. J. Dunn to Represent Thos. Halton's Sons in South

Thos. Halton's Sons, manufacturers of jacquard machinery, Philadelphia, has recently appointed Dennis J. Dunn to be their southern representative with offices in Charlotte, N. C. Mr. Dunn has long been associated with the textile industry. His knowledge of textile machinery, particularly jacquards, and his services for harness work, are at the disposal of any manufacturer in that territory.

J. B. MacNeill Heads Westinghouse Distribution Engineering

To secure coordination of effort, the Westinghouse Electric & Mfg. Co. have announced the appointment of J. B. MacNeill as general manager of distribution engineering with headquarters at East Pittsburgh. This group comprises the engineering activities on switchboards, circuit breakers, meters, relays, high tension insulators, and lightning arresters. Mr. MacNeill previously held successively the positions of circuit breaker engineer, section leader on circuit breakers, and manager of the circuit breaker engineering department.

B. Thies, Inc., Reorganizes Its Business

The business of B. Thies, Inc. has been completely reorganized and is now being conducted as heretofore. On account of changed conditions the company has discontinued the manufacture of all Thies equipment in this country. Under a long term agreeement with B. Thies of Coesfeld, Germany, the company will import machines and equipment from Germany. Expert dyers and erectors from abroad are available to install these machines and put them into operation.

The American firm gives a full guarantee supported by the firm of B. Thies of Coesfeld, Germany. B. Thies, Inc., is now located in new offices at 11 West 42nd St., New York. George W. Steiger is president.

New England Textile Stocks

Quotations at "Public Sale" are based on last sales at Boston Public Auctions and Boston Stock Exchange. Bid and Asked prices are latest quotations of dealers.

	Sale	Bid	Asked
Am. Mfg. Co.	52	47	52
Amoskeag	12	....	..
Arlington	16½	18	20
Associated Textile	36½	34	37
Bates	59½	59	62
Berkshire, Associates, com.	12½	12	..
Berkshire Associates, pfd.	40½	40	..
Bigelow-Sanford, com.	27½	....	..
Boott Mills	120½	....	95
Edwards	80¼	58	62
Esmond, pfd.	98	95	99
Farr Alpaca	50½	43	45
Hamilton Woolen	40	35	..
Hill	9	9	12
Indian Orchard	20½	15	..
Ludlow	114	108	113
Merrimack, com.	35	20	..
Nashua, com.	7½	6	8
Nashua, pfd.	29½	33	36
Naumkeag	84	81	84
Newmarket	16½	14	..
Otis	43	38	..
Pacific	23½	....	..
Pepperell	79½	80	82
Plymouth Cordage	69	67	70
York	8¼	8	..

N. Carolina Mill Stocks

(R. S. Dickson & Co., Charlotte, N. C.)

	Bid	Asked
Acme Spinning Co.	61	75
American Yarn & Processing Co.	50	61
Chadwick-Hoskins Co. (Par $25)	7	10
Chadwick-Hoskins Co., 8%, pfd.	83	91
China Grove Cotton Mills	78	83
Climax Spinning Co.	51	61
Clover Mills	....	20
Converse, D. E. Co.	....	80
Crescent Spinning Co.	45	56
Dixon Mills	80	91
Durham Hosiery, 6%, pfd.	21	25
Eagle Yarn Mills	52	65
Efird Mfg. Co.	....	42
Erwin Cotton Mills	....	110
Erwin Cotton Mills Co., 6%, pfd.	80	93
Flint Mfg. Co.	....	67
Flint Mfg. Co., 7%, pfd.	88	92
Globe Yarn Mills (N. C.)	....	15
Gray Mfg. Co.	....	65
Hanes, P. H. Knitting Co.	7	10
Hanes, P. H. Knitting Co., 7%, pfd.	83	93
Henrietta Mills, 7%, pfd.	35	43
Imperial Yarn Mills	....	55
Linford Mills	55	66
Locke Cotton Mills Co.	35	50
Majestic Mfg. Co.	99	111
Mansfield Mills	....	50
Mooresville Cotton Mills	3	5
Mooresville Cotton Mills, 7%, prior	....	68
Myers Mills	....	55
Myrtle Mills	....	48
National Yarn Mill	45	60
Perfection Spinning Co.	54	65
Ranlo Mfg. Co.	....	101
Roanoke Mills	....	45
Rosemary Mfg. Co., pfd., 7½%	90	95
Rowan Cotton Mills Co.	50	62
Seminole Cotton Mills Co.	....	65
Sterling Spinning Co.	50	62
Stowe Spinning Co.	50	60
Victory Yarn Mills Co.	....	38
Ware Shoals Mfg. Co.	100	115
Ware Shoals Mfg. Co., 7%, pfd.	80	92
Winget Yarn Mills Co.	....	42
Wiscassett Mills Co.	145	155

Textile Calendar

The Cotton Manufacturers Association of Georgia, Annual Meeting, Atlanta-Biltmore Hotel, Atlanta, Ga., April 7 and 8, 1931.

Southern Textile Association, Carders' Division, John C. Calhoun Hotel, Anderson, S. C., April 10, 1931.

Knitting Arts Exhibition, Commercial Museum, Philadelphia, April 13 to 17, 1931.

National Knitted Outerwear Association, Benjamin Franklin Hotel, Philadelphia. Directors' meeting, April 13; annual convention April 14, 1931.

North Carolina State College, Textile School, Style Show and Textile Exposition, State College Station, N. C., April 16, 1931.

National Association of Hosiery and Underwear Manufacturers, annual meeting, Commercial Museum, Philadelphia, April 16, 1931.

Southern Textile Association, Eastern Carolina Division, N. C. State College, Raleigh, N. C. April 17, 1931.

American Cotton Manufacturers Association, Thirty-fifth Annual Convention, Bon Air-Vanderbilt Hotel, Augusta, Ga., April 23 to 25, 1931.

Exposition of Chemical Industries, Grand Central Palace, New York, May 4 to 9, 1931.

Southern Textile Association, Master Mechanics' Division, Parker District High School, Greenville, S. C., May 8, 1931.

Phi Psi Textile Fraternity, 29th Annual Convention, Bradford Arms Hotel, Sagamore, Mass., May 8-10, 1931.

Philadelphia Textile School, Alumni Business Meeting, Philadelphia, June 4; Annual "Cruise" and Banquet, June 5, 1931.

Southern Textile Association, Annual Meeting, (Place to be announced later) June 12-13, 1931.

The Cotton Manufacturers Association of North Carolina, Twenty-fifth Annual Convention, Sedgefield Inn, Greensboro, N. C., June 19-20, 1931.

American Society for Testing Materials, Annual Meeting, Hotel Stevens, Chicago, June 22 to 26, 1931.

Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 17 to 22, 1932.

RECENT TEXTILE MILL STATEMENTS

Name and Address of Company	Line of Business	Fiscal Year	Assets						Total	Liabilities and Capital		
			Cash and Debts Receivable	Raw Materials, Mdse., Etc.	Total Quick Assets	Real Estate, Buildings and Machinery	Miscellaneous Amount	Miscellaneous Description		Accounts Payable, Floating and Funded Debt	Capital Stock	Surplus, Profit and Loss, Reserves, Etc.
Merrimack Hat Corp. Amesbury, Mass.	Wool	Dec. 31, 1929	$938,711	$764,056	$1,702,767	$504,300	$31,028	Insurance	$2,238,095	$195,650	$894,250	$1,148,195
		Dec. 31, 1928	1,019,424	580,296	1,599,720	428,238	18,336	Insurance	2,046,294	173,811	894,250	978,233
Chicopee Mfg. Corp. Chicopee Falls, Mass.	Cotton	Dec. 31, 1929	1,088,882	1,805,590	2,894,472	4,903,442	42,743	Def. charges	7,840,657	898,646	1,600,000	5,342,011
		Dec. 31, 1928	1,206,943	1,330,471	2,537,414	4,216,271	827,470	Miscellaneous	7,581,155	654,590	1,600,000	5,326,565
Berkshire Fine Spinning Associates Adams, Mass.	Cotton	Sept. 30, 1930	2,378,364	8,752,320	11,130,684	9,135,235	619,806	Miscellaneous	20,885,725	4,268,123	16,395,892	[1]297,267
		Sept. 30, 1929	2,789,604	6,967,057	9,756,661	12,554,469	500,658	Miscellaneous	22,811,788	1,542,562	[2]21,262,782	6,444
Everlastic, Inc. Chelsea, Mass.	Cotton	Dec. 31, 1929	528,019	754,850	1,282,869	2,758,885	1,146,341	Miscellaneous	5,188,095	814,603	3,248,578	1,124,914
		Dec. 31. 1928	469,670	747,727	1,217,397	2,750,668	1,159,197	Miscellaneous	5,127,262	961,099	3,058,043	1,108,120
Harris Silk Hosiery Co. Springfield, Mass.	Knit	Dec. 31, 1929	81,540	76,029	157,569	267,371	26,327	Miscellaneous	451,267	70,014	373,950	7,303
		Dec. 31, 1928	62,548	101,438	163,986	278,763	32,012	Miscellaneous	474,761	106,459	360,350	7,952
Intervale Mills Dudley, Mass.	Wool	Dec. 31, 1929	37,120	97,361	134,481	554,391	4,905	Prepaid Exp.	693,777	217,665	560,400	[3]441,533
		Dec. 31, 1928	53,650	158,599	212,249	655,923	7,237	Prepaid Exp.	875,409	229,559	560,400	[4]506,297
Musgrove Knitting Co., Inc. Pittsfield, Mass.	Knit	June 30, 1930	21,740	86,729	108,469	78,157	8,859	Miscellaneous	195,485	30,478	132,000	33,007
		June 30, 1929	7,262	100,815	108,067	83,050	4,594	Def. Charges	195,721	24,075	132,000	39,646
Defiance Mfg. Co. Barrowsville, Mass.	Finishing	Dec. 31, 1929	199,788	34,779	234,567	589,688	297,708	Miscellaneous	1,121,962	96,461	777,200	248,302
		Dec. 31, 1928	184,413	32,798	217,211	576,449	296,135	Miscellaneous	1,089,795	96,981	777,200	215,614
South Acton Woolen Co. South Acton, Mass.	Wool	June 30, 1930	160,293	51,159	211,452	30,538	13,977	Miscellaneous	255,967	4,904	163,000	88,063
		June 30, 1929	163,406	45,931	209,337	32,531	13,783	Miscellaneous	255,651	5,221	163,000	87,430

(1) Deduct deficit of $75,557. (2) Includes surplus. (3) Deduct deficit of $525,821. (4) Deduct deficit of $420,847.

NEWS about MEN

✦ DR. ARTHUR E. OXLEY, for 10 years head of the physics and spinning department of the British Cotton Industry Research Association, Shirley Institute, Didsbury, England, is now executive in charge of research at the Clark Thread Co., Newark, N. J., and of the associated firm of J. & P. Coats (America), Inc., Pawtucket, R. I. As has been previously announced in these columns, the Clark Thread Co. is constructing a large new plant in the South at Austell, near Atlanta, Ga. Dr. Oxley has been closely identified with textile research in England and is a fellow of the Institute of Physics and of the Textile Institute of Great Britain, as well as having degrees of M. A. from Cambridge and D. Sc. from London and Sheffield.

✦ J. C. SELF, president and treasurer of the Greenwood (S. C.) Cotton Mill and the Ninety Six (S. C.) Cotton Mill, has been elected a director of the Greenwood chamber of commerce.

✦ JOHN C. SAUNDERS has been elected president and general manager of the Bonham (Texas) Cotton Mills. Other officers elected are FRANCIS STEGER and M. C. SPIVEY, vice-presidents; BLAND SMITH, secretary; A. B. SCARBOROUGH, treasurer. JOHN C. SAUNDERS, FRANCIS STEGER, M. C. SPIVEY, BLAND SMITH, A. B. SCARBOROUGH, R. E. RISSER, CHARLES HALSELL were elected directors. All are residents of Bonham.

✦ J. E. FLAVELLE has been elected president of Universal Silk Dyers, Ltd., Lindsay (Ont., Can.). Other officers elected are DR. F. A. ZEIDLER, vice-president and general manager; and A. P. BEAL, secretary-treasurer.

✦ FERDINAND THUN, president of Berkshire Knitting Mills, Reading, Pa., and MRS. THUN are on an extensive cruise of the West Indies.

✦ ROBERT H. COE, president and treasurer of the Coe Woolen Co., Worcester, Mass., has been elected a director of the Holden (Mass.) District Hospital.

✦ WILLIAM L. HAYWARD, president of the Hayward Woolen Co., East Douglas, Mass., has been appointed a member of the finance committee of that town for three years. WINFIELD A. SCHUSTER, of Schuster Woolen Co., was appointed on the same committee for one year.

✦ MATTHEW P. WHITTALL, president and treasurer of the M. J. Whittall Associates, Ltd., Worcester, Mass., has returned from a month's cruise to the Mediterranean.

✦ CHARLES A. HORTON, president and general manager of the Hope Webbing Co., Pawtucket, R. I., has been elected a member of the United States Institute of Textile Research, Inc. J. FRANK MORRISSEY, superintendent of the Interlaken Mills at West Warwick is another to be elected from Rhode Island.

✦ DR. HOWARD RONTHALER, president of the Salem Female College, Winston-Salem, N. C., made the principal address at the closing exercises of the night schools at the Cones Mills, which occasion was in the form of a banquet, presided over by J. E. HARDIN, secretary of Proximity Mfg. Co. Short talks were also made by BERNARD M. CONE, BEN CONE, and G. W. COGGINS, of Raleigh, state supervisor of industrial education.

✦ THEODORE FRIEDLANDER, secretary of the Phoenix Hosiery Co. has been named vice-chairman of two committees of the Milwaukee Association of Commerce.

✦ C. W. CAUSEY, an executive of the Pomona Mills, Inc., Greensboro, N. C., was elected vice-president of the Lowe Mfg. Co., Huntsville, Ala., at the recent annual meeting of the directors held in the offices of the Lowe company.

✦ JOHN F. TINSLEY, vice-president and general manager of the Crompton & Knowles Loom Works, Worcester, Mass., has been elected a director of the Worcester Electric Light Co.

✦ AMES STEVENS, vice-president of the Royal Worsted Mills and Lawrence Mfg. Co., also treasurer of Maine Spinning Co. and Ames Worsted Co., of Lowell, Mass., has been elected to the board of directors of the New England Trust Co., Boston, Mass.

✦ WALTER E. SCHUSTER, treasurer of the Schuster Woolen Co., and the Hayward Woolen Co., both of East Douglas, Mass., has been re-elected chairman of the board of selectmen of that town and also appointed on the finance committee of the town.

✦ GUSTAVO GYSLER, of Milan, Italy, a member of the cotton firm of Gysler & Co. of that city, is visiting in Texas.

✦ P. I. SHARAPOV, director of the All-Russian Textile Syndicate, recently visited the Clemson College (S. C.) Textile School.

✦ CLAUDE S. SNIDER, an attorney in the U. S. Patent Office, Washington, has accepted a position with the Draper Corp., Hopedale, Mass., assuming some of the duties held by CLARE H. DRAPER, vice-president, who resigned on Feb. 28.

✦ MISS DORIS HINMAN, educational lecturer of the Durene Association will be in charge of an exhibit of outer and underwear at the Southeastern Cotton Festival, which will be held at Anderson, S. C., April 9 and 10.

✦ PROF. EDGAR H. BARKER of the Lowell Textile Institute sailed March 19 on the S.S. "Aquitania" on a business trip to Paris and other centers on the continent.

✦ FREDERICK R. EDINGTON has been appointed general manager of the Botany Worsted Mills, Passaic, N. J., succeeding FRITZ HALTMAYER, who is retiring after holding positions for 30 years with the Botany firm. Mr. Edington, who was the head of Edington & Co., wool dealers, Boston, is regarded as one of the industry's keenest minds in the raw material section and for the last few years has been associated with Mr. Haltmayer in the purchasing of Botany wools.

✦ ROBERT GAGE, of Chester, S. C., a director of the Aragon-Baldwin Cotton Mills, Inc., and vice-president and cashier of the Commercial Bank of Chester, has been reelected a member of the board of directors of the Charlotte, N. C., branch of the Federal Reserve Bank of Richmond, Va., for a three-year term.

✦ W. H. LANGLEY has been appointed direct representative for the Wamsutta Mills, New Bedford, Mass., in the San Francisco territory.

✦ S. A. COHEN has resigned as superintendent of the Roff Knitting Mills, Cohoes, N. Y., in order to organize a new knit goods firm at that place.

✦ RAYMOND KELSEY, paymaster for the Fabyan Woolen Co., Stafford Springs, Conn., has been elected assistant cashier of the First National Bank of that town, He is also to be appointed county treasurer of that county.

✦ MAX HIGGINS, formerly connected with the sales force of E. F. Houghton & Co., is now overseer of the weaving department of the Patterson Mills Co., Rosemary, N. C.

✦ WALTER TEETZEL, manager of Jantzen Knitting Mills of Canada, Ltd., and head of the Universal Knitting Co., of Vancouver, has just been elected a director of the advertising and sales bureau of the Vancouver board of trade.

✦ CAPT. H. P. MEIKLEHAM, southern agent for the Pepperell Mfg. Co., Lindale (Ga.) plant has been chosen president of the Textile Baseball League, which is composed of villages and towns in textile villages in the vicinity of Lindale.

✦ J. R. COPLAND has resigned as general superintendent of Burlington (N. C.) Mills, Inc., North Carolina Silk Mills, and Piedmont Weavers, Inc., also of Burlington. His successor has not been announced.

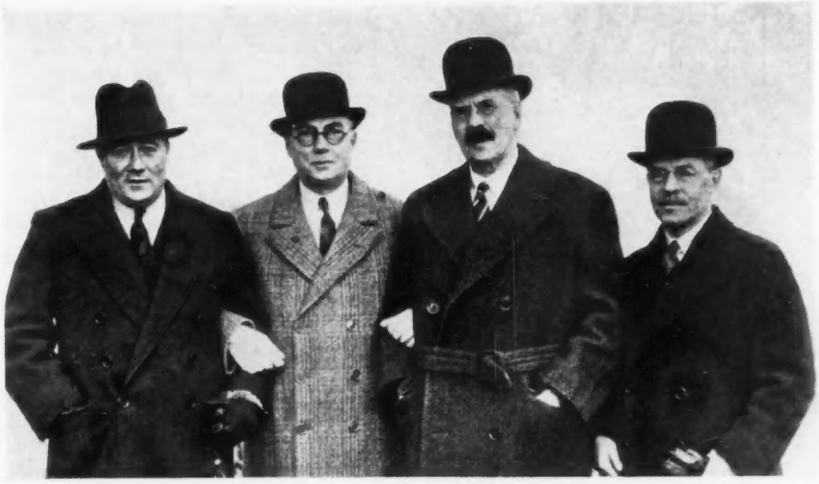
✦ WILL BENNETT, of the Martel Mills, Inc., Egan, Ga., has succeeded DAVID CARTER, who recently resigned, as overseer of the cloth room of the Henrietta (N. C.) Mills.

✦ WALTER C. MORSE, formerly overseer of dyeing for the Homestead Woolen Mills, West Swanzey, N. H., has been promoted to superintendent of the above company, and is succeeded by EDWARD SANDS, formerly with the Hillsboro (N. H.) Woolen Mill Co.

✦ V. A. PHARR has resigned with the Egan, Ga., plant of the Martel Mills, Inc., and has accepted the position of night overseer of carding at the Henrietta (N. C.) Mills.

✦ EMILE WEINEE, former assistant designer for the George H. Gilbert Mfg. Co., Gilbertville, Mass., is now overseer of weaving at the Eagle Mills, Huntington, Mass.

✦ J. B. WOODS has resigned as overseer of weaving at plant No. 2 of the Eureka Cotton Mills, Chester, S. C.



Arthur Mullins, J. MacPherson Brown, John Hutcheson, Edward S. Harrison, members of the Scottish woolen trade delegation, who are making a tour of this country and Canada to determine what fabrics Americans want. The delegation, all of whom are members of the National Association of Scottish Woolen Manufacturers, is the first of its kind to come from Scotland representing the entire trade, in conjunction with the British government.

Inc., North Carolina Silk Mills, and Piedmont Weavers, Inc., also of Burlington.

✦ Robert Gray, superintendent of the recently constructed Pacific Coast Linen Mills plant, Vancouver, Wash., arrived March 12 from Belfast, Ireland. Mr. Gray is a graduate of the Textile Institute in Belfast.

✦ William J. Foppert has resigned as head of Dept. 2 of the American Woolen Co. The position carries with it the title of assistant selling agent. Mr. Foppert has been connected with the firm for 28 years and has been head of Dept. 2 for 20. This is the fancy worsted suiting department with which Dept. 7 was merged two years ago.

✦ Earl Lindburg, for the last three years merchandise manager of the apparel division, Gimbel Bros., Philadelphia, has resigned. After a short vacation he will join the American Woolen Co. as head of Dept. 4, including supervision of styling and sales of women's wear fabrics.

✦ John L. Green, Taftville, Conn., has been appointed superintendent of the Edwards Mfg. Co., Augusta, Me., beginning March 23, to succeed James A. Andrews, who resigned to devote his time to private interests. Mr. Green has been in charge of carding at the Ponemah Mill.

✦ C. C. Finch, superintendent of the Broadalbin (N. Y.) Knitting Co., was re-elected mayor of that place.

✦ M. D. Carver is now head of the reeling department of the Loray plant of the Manville-Jenckes Co., Gastonia, N. C.

✦ John Gay is now master mechanic at the Entwistle Mfg. Co., Rockingham, N. C.

✦ G. B. Fowler is now master mechanic at the Valley Falls (S. C.) plant of the Martel Mills.

✦ Frederick Shaw, foreman in the finishing department of the Slingsby Mfg. Co., Ltd., Brantford (Ont., Can.), textile manufacturer, has resigned to take a position with Dominion Woolens, Peterborough, Ont.

✦ W. H. Byers is now second hand in spinning at Lonsdale Mills, Seneca, S. C.

Obituary

Henry Clay Graton

Henry Clay Graton, a founder of and for many years treasurer of the Graton & Knight Co., Worcester, Mass., died at his home in that city on March 20, after a short illness due to old age. Mr. Graton was 100 years and eight months old and was said to have been the oldest industrialist in the country, although not actively engaged in business for several years. He took to his bed about 10 days previous to his death, up to which time he had been in excellent health for one of his age.

Mr. Graton was born in Leicester, Mass., on July 10, 1830. He began his long business career at the age of 15 years by working in a card clothing plant in Worcester. At the age of 21 he formed a partnership with Joseph A. Knight as Graton & Knight and they purchased the belting department of T. K. Earle & Co., and began manufacturing in a building which is still standing on Grafton Street in Worcester. Mr. Knight attended to the manufacture of belting and Mr. Graton to the sales. They established their own tannery in 1867. In 1872 the Graton & Knight Mfg. Co., was incorporated with a capital stock of $100,000. Mr. Knight was elected president and Mr. Graton treasurer. Three years later the capital stock was doubled and the company began sending out salesmen. In 1893 the capital stock was increased to $300,000 and a new four-story building was erected. Today the company's capital and surplus is over $5,000,000 and its present plant in Worcester has a total floor space of more than 15 acres. In addition the company has branch plants in Detroit, Buffalo, Lewiston (Me.), and Montreal.

Mr. Graton had passed his 90th birthday before he relinquished an active participation in the management of the business. During his 70 active years he saw to it that the Graton & Knight business kept pace with the rapid evolution of American manufacturing. He participated closely in extension of trade, from the local field to a world wide market. On July 10, 1930, Mr. Graton celebrated the 100th anniversary of his birth by entertainment of his business associates and friends. On that occasion he received numerous gifts and letters of congratulations, including a telegram from President Hoover, wishing him success. He was an honorary trustee of Boston University. The nearest surviving relatives are two nephews and a niece.

Louis J. Elsas

Louis J. Elsas, vice-president of the Fulton Bag & Cotton Mills, Atlanta, Ga., died suddenly March 23 of complications arising from an appendicitis operation. Mr. Elsas was in his 52d year, and was the son of Jacob Elsas. He was educated in Atlanta schools and later was graduated from Harvard University. He was a member of the Standard Club, and of the Ingleside Country Club of Atlanta, as well as an active Rotarian. He is survived by his father, his widow and two children, three brothers and two sisters.

Walter L. Parker

Walter L. Parker, founder of the Walter L. Parker Bobbin Co., Lowell, Mass., died March 22 at his home in Lowell. Mr. Parker was 73 years old. He was vice-president of the Union Old Lowell National Bank, a director of the Mechanics Savings Bank, the Lowell Mutual Fire Insurance Co., and the Stony Brook Railroad. He was a member of several Masonic bodies, the Yorick Country Club, and the Vespers Country Club.

Edward P. Bagg

Edward P. Bagg, president of the Holyoke Silk Hosiery Co. and vice-president of the Farr Alpaca Co., Holyoke, Mass., died in his winter home in Deland, Fla., March 20, after several years of ill health. He was 75 years old. Mr. Bagg was a native of West Springfield, Mass., but had lived in Holyoke for 53 years, during which his major interest was in the paper industry.

Bernard T. Steber

Bernard T. Steber, inventor of knitting machines which he manufactured in Utica, N. Y., for several years, died at his home in Utica on March 15. Mr. Steber was the organizer of the Steber Machine Co. and served as president and general manager of that concern. He sold his interests in the Steber Co. in 1922.

Bertrand F. Goodrich

Bertrand F. Goodrich, aged 57 years, president of the Appleton-Superior Knitting Works Corp., Appleton, Wis., died suddenly March 8 at his home. Mr. Goodrich had been connected with the knitting concern for the last 32 years.

Benjamin A. Holmes

Benjamin Alonzo Holmes, aged 65 years, retired superintendent of Irene Mills, Gaffney, S. C., died March 18.

NEWS about MILLS

Cotton

Powdrell & Alexander, Inc., Danielson, Conn., plan to start work during May on the proposed new plant at Wellfleet, Mass. W. B. Brennan, Danielson, company engineer, has drawn plans for a one-story brick, mill-construction building 50x120 ft.

Goodyear Clearwater Mill No. 2, Atco, Ga., went on full-time last week, according to statement of G. I. Parmenter, superintendent.

Royston (Ga.) Spinning Mills, equipped with 6,144 spindles, will begin operations within a few weeks. In order to complete the mills and put them in operation, $50,000 was raised by a bond issue, taken mostly by local people. The mill property, including site, building and equipment, has been appraised at $200,000. The mills have their own dye plant.

Thomaston (Ga.) Cotton Mills, are starting their 26 combers, idle for the last six years, on yarns for broadcloth that will be woven by the **Griffin (Ga.) Mills**.

Oconee Mfg. Co., Whitehall, Ga., is having a complete humidifying system installed by the R. I. Humidifier & Vent Co.

***Lancaster Mills,** Clinton, Mass., in liquidation, held a meeting of the directors of the corporation in Boston on March 17, but no action was taken on selling the remaining real estate, comprising the plant. Another meeting for this purpose will be held within a week, as the directors desire to dispose of the property before April 1.

American Printing Co., Fall River, Mass., is making preparations to open Mill No. 3 of the cotton division, and will put on 350 more workers. About two weeks ago Mill No. 2 was put in operation with 400 operatives. All five mills of the cotton division have been idle since June 7.

Holt, Love & Smith, Inc., Burlington, N. C., will add 10,000 ft. of floor space to house 36 additional jacquard looms.

Proximity Print Works, White Oak, Revolution and East White Oak Mills, Greensboro, N. C., will be provided modern sanitary equipment for homes of the mill villages at a cost of more than $200,000, Herman Cone, treasurer of Proximity, announced on Wednesday.

Vance Cotton Mills, Salisbury, N .C., which have been idle for about two years, were recently purchased from the Wachovia Bank & Trust Co., by M. M. Rudisill and Carl Rudisill, of Cherryville and Lincolnton, N. C., and S. P. Carpenter, who was associated with a yarn selling house in Philadelphia, Pa., for 12 years. The new company will be known as **Cartex Mills, Inc.**, and it was announced that the plant and village will be improved. Work on the cleaning and repairing of machinery began this week. Mr. Carpenter will be general manager.

Spofford Mills, Inc., Wilmington, N. C., formerly the **Delgado Mills**, are installing a new humidifying system, furnished by R. I. Humidifier & Vent Co.

**Indicates previous mention of project.*

Carolina Textile Corp., Dillon, S. C., recently placed additional orders with Borne-Scrymser Co. for Breton Minerol process machinery for its second mill.

Chiquola Mfg. Co., Honea Path, S. C., has increased working hours from 55 to 80 a week.

Victor-Monaghan Co., Walhalla, S. C., is making ready to operate the steam power plant at its local mill, discontinued some time ago for power supply from the Southern Power Co. Water shortage is curtailing output at the hydroelectric power plants of the utility company.

***Dominion Textile Co., Ltd.**, has sold its Kingston, Ont., plant to the City of Kingston for $75,000. This unit has been closed since June, 1929, and equipment has been transferred to the plant of a subsidiary, **Sherbrooke Cotton Co**. The city of Kingston will lease its newly acquired textile mill to **Heild Bros.**, English woolen and worsted manufacturing concern.

***Dominion Webbing Co., Ltd.**, Kingston (Ont., Can.) organized to manufacture elastic and non-elastic fibers, will start operations at the end of April. Present plans call for installation of over 50 looms.

Wool

Hockanum Mills Co., Rockville, Conn., is running all of its plants on a full-time schedule. It is understood that the company intends to consolidate all of its carding and spinning operations in one mill, the weaving in another and dyeing and finishing in another plant.

***Channing Smith Textile Corp.**, Cherry Valley, Mass., has filed schedules of liabilities and assets in the U. S. district court at Boston, disclosing liabilities of $431,733.76 and assets of $502,618.07. The major part of the assets comprises real estate valued at $322,140.00. Stock in trade is listed at $69,696.00. Joseph Talamo, receiver for the corporation, has filed a petition for authority to sell some of the real estate holdings, which will be considered by the referee in bankruptcy at the first meeting of the creditors called by him in Worcester, Mass., on March 28. The creditors will decide if the property can be sold at a private sale or public auction. If the petition is acted upon favorably, one or possibly two of the three mills will be sold to meet the debts of the corporation. Reading M. Smith, assistant general superintendent and a son of the late Channing Smith, is in charge of the mills, which are not in operation.

Rochdale (Mass.) Mills of the **American Woolen Co.**, which resumed operation on March 2 after a year's shutdown, are running a day and night schedule with only a few of the departments being operated.

Ware (Mass.) Woolen Co. has added 20 looms to take care of increased business. Additional motor drives have been installed to go with this equipment.

Alexander Smith & Sons Carpet Co., Yonkers, N. Y., is arranging for the abandonment of its lower mill on Elm St., and will concentrate production of that unit with one of its other mills in the city.

***Asheville (N. C.) Weavers, Inc.**, have established temporary offices in the Flatiron Building at Asheville. Headquarters will be moved to the company's plant when it is built, Sidney Sheero, president, announced. The concern, recently incorporated under North Carolina laws, will manufacture woolen and worsted products.

Jefferson Woolen Mills, Knoxville, Tenn., are now operating on a full-time schedule, with a force of 350 persons.

Dominion Woollens & Worsteds, Ltd., has reopened its worsted yarn spinning mill at Orillia (Ont., Can.) which has been closed for over two years. It is expected that a similar unit at Milton, Ont., will be reopened shortly. Other plants of the company are working close to full-time capacity.

Knit

Sulloway Mills, Franklin, N. H., have acquired the **Contoocook Mills Corp.**, Hillsboro and Laconia, N. H., and will consolidate the two companies. The merger unites two of the oldest and largest woolen hosiery mills in the country. The Hillsboro plant will be closed and much of the machinery moved to Franklin. The Sulloway Mills take over the lease of the **Belknap Mills Corp.**, Laconia, now held by Contoocook, and will operate principally as a yarn mill.

G. & H. Hosiery Co., Tilton, N. H., will begin operations April 1, employing 15 persons.

Ballston-Stillwater Knitting Co., Stillwater, N. Y., is now running on curtailed schedules pending repairs in the carding department.

Asheville (N. C.) Hosiery Co., has taken bids on general contract from four local contractors for a new two-story addition on Deaverview Rd. West, brick and steel type, and is expected to place award at an early date. The new unit

is reported to cost about $90,000, with equipment. F. Q. Boyer, Asheville, is architect.

G. & H. Hosiery Co., West Hickory, N. C., has been granted a charter authorizing the concern to manufacture hosiery of all kinds and grades. It is capitalized at $50,000, with $2,100 subscribed. The incorporators are: E. S. Merritt, G. W. Grove and Dr. F. B. Hicks, all of Hickory, N. C.

Nu-Fashioned Hosiery Mills, Inc., Murphy, N. C., have been sold to a group of business men of Murphy, by G. T. Whitlock, majority stock owner. Organization of a new management will be announced soon and plans are being made for resuming operation at the plant.

Plymouth Knitting Mills Co. will erect and operate three additional plants at Newton, Pa., South Sterling, Pa., and Betterton, Md., designed by Henry L. Reinhold, Jr., Philadelphia, Pa. The mills will have equipment of 18 full-fashioned 45 gauge 24 section machines, enabling a total annual production of about 150,000 dozen pairs of hosiery. Contracts have been awarded to A. W. Gordon, Torresdale, Pa., at a cost of $150,000 for the three units, which Horace K. Read, president of Plymouth Knitting Mills Co., stated would be rushed to early completion.

Krause Knitcraft Mfg. Co., Seattle, Wash., filed papers of incorporation at Olympia, Wash., March 17, with a capital stock of $15,000. The incorporators are: Walter O. Krause and Blanche E. Pfeiffer, Seattle, Wash.

**Indicates previous mention of project.*

Harvey Knitting Co., Ltd., Woodstock (Ont., Can.) is undergoing some changes since its merger with the **Woods Underwear Co., Ltd.**, of Toronto, the most important being the return of the cotton and woolen departments to the Harvey Co., which were removed to the Zimmerknit plant in Hamilton, when the Harvey Co. amalgamated with the Zimmerknit Co.

Silk

Cheney Bros. Co., Manchester, Conn., is running over 90% of normal at its mill, with close to full working quota, and will continue on that basis for an indefinite period.

Champlain Silk Mills, Whitehall, N. Y. —Plant No. 2 of this company on East Boardman St., has been leased by the Pretoned Wallboard Corp., and will be used for another line of manufacture.

R. K. Laros Silk Co., Inc., Bethlehem, Pa., expects to have its four plants in full operation by April 1. President R. K. Laros stated that all department output has been sold up to capacity for spring.

Gracia Mills, Pawtucket, R. I., have been organized to manufacture drapery fabrics at 56 Broadway, employing ten at the start.

Berizzi Bros. Co. of Tenn., Inc., Erwin, Tenn., has started work on the new $30,000 addition.

Norfolk Weavers, Inc., rayon weaving plant at Lamberts Point, Va., have begun operation with a force of approximately 40 persons, as announced by E. C. Wilson, superintendent of the mill. This force will be increased at the rate of between 50 and 60 persons per week until the number of employees will reach 250. New workers will be added as soon as the warp is prepared in the looms. Experienced employees who were with the plant when it operated under the **Amalgamated Silk** interests are being taken on for the most part, Mr. Wilson, superintendent of the old plant, stated.

Rayon

American Glanzstoff Corp., Elizabethton, Tenn., is now operating at almost normal capacity, with 2,500 employees. Many of the employes of the **American Bemberg Corp.** have been transferred to Glanzstoff.

***Courtaulds (Canada) Ltd.**, have let seven final sub-contracts in connection with the $1,000,000 additions to plant at Cornwall, Ont. Foundation Co. of Canada, is the general contractor.

Finishing

Commander Mills, Inc., Sand Springs, Okla., are arranging for early operations in a new local mill unit now nearing completion, recently secured under lease. It will be used for bleaching and kindred service. J. E. Sirrine & Co., Greenville, S. C., are architects and engineers. The new addition will represent investment of close to $300,000, with equipment.

Textile Patents

ARTIFICIAL silk and the process of producing the same. 1,796,744. Benno Borzykowski, Paris, France. Assigned to Swiss Borvisk Co., Wilmington, Del.

CARPET and method of producing the same. 1,795,632. Benno A. Zedler, Milwaukee, Wis.

COTTON gins, Vibrating doffer for. 1,795,794. Hoy Owens, Lufkin, Texas.

CREEL. 1,795,091. Fay H. Martin, Woonsocket, R. I. Assigned to Whitin Machine Works, Whitinsville, Mass.

DEVICE for producing designs upon knitting machines. 1,795,235. Yves Ruinnet, Argenteuill, France.

DOUBLE-PILE fabric. 1,795,156. John Zimmerman, Jr., Oak Lane, Pa.

DOUBLE-PILE fabric. 1,795,157. John Zimmerman, Jr., Oak Lane, Pa.

DOUBLE-PILE fabric. 1,795,158. John Zimmerman, Jr., Oak Lane, Pa.

ELASTIC fabric. 1,796,041. John V. Moore, Pawtucket, R. I. Assigned to Moore Fabric Co., Inc., Pawtucket, R. I.

FABRIC. 1,794,554. Samuel Schwartz, Albany, N. Y.

FIBERS, Manufacture of textile. 1,795,414. Joseph Vallet, Paris, France. Assigned to N. T. Artificial Wool Co., Ltd., London, England.

FLAX, Machine for thrashing and scutching. 1,795,530. Henry C. Watson and Martin Waddell, Belfast, Ireland.

HOSIERY, Circular knit and method of making the same. 1,795,131. Robert H. Lawson, Pawtucket, R. I. Assigned to the Hemphill Co., Central Falls, R. I.

JACQUARD for looms for weaving brussels carpets and like fabrics. 1,797,069. Robert Britton, Halifax, England.

KNITTING machine. 1,794,415. Joseph Alfred Mills, East Kirkby, England.

KNITTING machine. 1,796,642. Thomas Ashby and William H. Boaler, near Derby, England. Assigned to Cellanese Corp., of America.

KNITTING machine. 1,797,006. Vincent Lombardi, Brooklyn, N. Y.

KNITTING machine and process for producing split fabric. 1,796,202. Frank E. Jones, Pawtucket, R. I. Assigned to Hemphill Co., Central Falls, R. I.

LOOMS, Let-off mechanism for. 1,795,584. William S. Wells, Los Angeles, Calif. Assigned to Wonder Weave, Inc., Boston, Mass.

LOOM mechanism. 1,797,046. Donal Childress, Gaffney, S. C. Assigned to Harry L. Frieze and P. E. Morgan, Gaffney, S. C.

PRINTING machine for textile fabrics. 1,797,038. Peter M. Zlydin, Astoria, N. Y.

PROCESS for the manufacture of textile yarns. 1,796,719. Dinshaw R. Nanji, London, England.

PROCESS for the treatment of plant materials in the preparation of fibers. 1,796,718. Dinshaw R. Nanji, Leeds, England.

SPINDLES, Bobbin-clutching means for rotating. 1,796,770. Wallace I. Stimpson, Hopedale, Mass. Assigned to Draper Corp., Hopedale, Mass.

SPINDLE lift stop. 1,795,576. Thomas J. Risk, Pawtucket, R. I. Assigned to Easton and Burnham Machine Co., Pawtucket, R. I.

SPINNING frames, Differential spinning drum drive for. 1,796,392. Henry A. Owen, Foxboro, Mass. Assigned to Davis & Furber Machine Co., North Andover, Mass.

SPINNING frame, General drive for. 1,796,391. Henry A. Owen, Foxboro, Mass. Assigned to Davis & Furber Machine Co., North Andover, Mass.

SPINNING frames, Thread board-lifting mechanism for. 1,796,390. Henry A. Owen, Foxboro, Mass. Assigned to Davis & Furber Machine Co., North Andover, Mass.

SPINNING machines, High draft system for. 1,794,578. Friedrick Brock, Vienna, Austria.

SPOOL for treating yarn or rove with liquids. 1,795,529. Henry C. Watson and Martin Waddell, Belfast, Ireland. Assigned to Watson-Waddell, Ltd., Belfast, Ireland.

STOP motion for drawing frames. 1,795,799. Walter J. Scott, Woonsocket, R. I.

THREAD-TWISTING device for knitting and other machines. 1,795,683. Morris Schoenfeld, Zurich, Switzerland.

THREAD guide for shuttles. 1,786,602. William Pickney Craig, Shelby, N. C.

THREAD holder for weft replenishing looms. 1,786,671. Alfred F. Morrell, Worcester, Mass. Assigned to Crompton & Knowles Loom Works, Worcester, Mass.

TUFTED yarn fabric and method of weaving the same. 1,797,058. Victor Gero, Glenside, Pa. Assigned to Pennsylvania Carpet Corp., Philadelphia, Pa.

UNDERGARMENT. 1,787,045. Fred J. Lewis, Indianapolis, Ind. Assigned to McLoughlin Mfg. Co., Indianapolis, Ind.

WARPING frame. 1,787,323. Wilhelm Reiners and Gustav Kahlisch, Munich, Germany.

WARP stop-motion for terry towel looms. 1,786,675. John Regan, New Bedford, Mass. Assigned to Crompton & Knowles Loom Works, Worcester, Mass.

WARP-BEAMING machine. 1,795,506. Wilheim Kahlisch and Gustav Reiners, Munich, Germany, Assigned to W. Schlafhorst & Co., Munich, Germany.

WARP knitting frame. 1,796,579. Rudolph Ruff, Apolda, Germany.

WEFT detector. 1,786,683. Richard G. Turner, Worcester, Mass. Assigned to Crompton & Knowles Loom Works, Worcester, Mass.

YARN cones, Device for perforating the cores of. 1,796,448. Ward N. Gere, Liverpool, N. Y. Assigned to Eclipse Textile Devices, Inc., Elmira Heights, N. Y.

YARNS or threads of fibrous substances, Machine for producing. 1,795,351. Alfred Stell, Keighly, England.

YARN tensioning device. 1,787,083. John O. McKean, Westfield, Mass. Assigned to Foster Machine Co., Westfield, Mass.

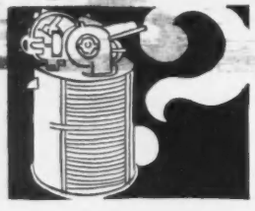
YARN-SINKING apparatus for knitting machines. 1,787,010. Harry McAdams, Philadelphia, Pa.

TRUTH LIVES FOREVER • • •

A fact is a fact, and is always the same. An opinion may vary with what you had for dinner.

Socrates, history's great searcher for facts, found the truth by the question and answer method—a method that today is used to discover the truth about Termaco Roving Bobbin Cleaners.

A few of the answers of Dacotah Cotton Mills, of Lexington, N. C., when questioned by the Socratic method, show that this mill, which cleans approximately 22,000 bobbins daily, has found a Termaco reduces roving waste 75 per cent, doubles life of bobbins, increases breaking strength of yarn, eliminates labor cost of cleaning bobbins and makes it practical to mix waste with raw stock without additional reworking.



The complete answers of Dacotah Cotton Mills and other Termaco users have been collected in an interesting "Fact" book. Just write us for "Termaco Facts." We would be pleased to send you a copy.

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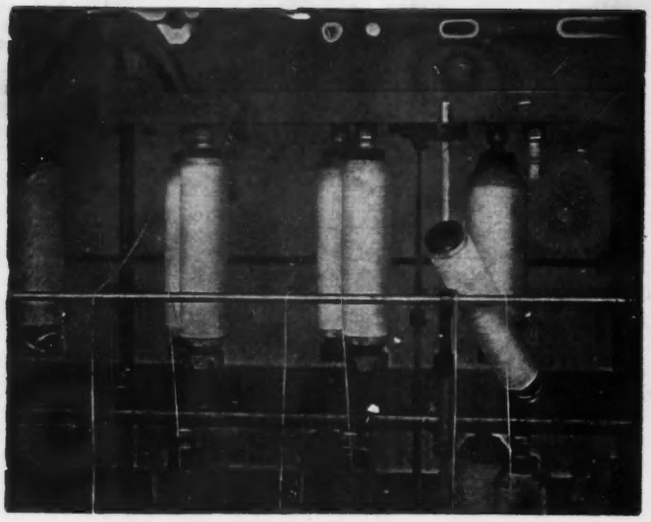

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